CROSS-CULTURAL ADAPTATION AND VALIDATION OF THE MALEKA STROKE COMMUNITY RE-INTEGRATION MEASURE AMONG YORUBA SPEAKING STROKE SURVIVORS

A DISSERTATION SUBMITTED TO THE DEPARTMENT OF PHYSIOTHERAPY, FACULTY OF CLINICAL SCIENCES, COLLEGE OF MEDICINE, UNIVERSITY OF IBADAN IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE AWARD OF MPHIL DEGREE IN NEUROLOGICAL PHYSIOTHERAPY

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CERTIFICATION

I, Professor Aderonke O. Akinpelu hereby certify that this study was carried out by Mr. Olaniyan Akinlade Sola under my supervision

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SUPERVISOR

Professor Aderonke O. Akinpelu**.,** PhD., FNSP.

DEDICATION

I dedicate this work to:

(1) **Mr. Isashola Olaniyan (**my late father**)** and **Mrs. Felicia Olaniyan (**my late mother) who laid the foundation of my education.

(2) My beloved wife, **Mrs. Grace Modupe Olaniyan** for her encouragement and support.

(3) My lovely son, **Victor Oluwaseyitan Olaniyan** and lovely daughter, **Favour Opeyemi Olaniyan** for their cooperation and understanding.

ABSTRACT

One of the major goals of stroke rehabilitation is adequate community re-integration of the stroke survivors. Although some instruments have been developed to measure community re-integration in post-stroke individuals, the Maleka Stroke Community Re-Integration Measure (MSCRIM) which was developed in South Africa closely captures cultural and belief concept among Nigerians. The MSCRIM had been previously adapted into Igbo culture and environment but not Yoruba culture. Despite the fact that South Africa culture is similar to that of Nigeria culture in some areas, there are specific cultural variability. Hence, the need to adapt the MSCRIM into Nigeria Culture. Therefore, the aim of this study was to adapt the scale into another one of the major indigenous Nigerian Language which is Yoruba and to validate it among Yoruba-speaking stroke survivors.

The study followed the guidelines of American Association of Orthopaedic Surgeons (AAOS) of self-report scale for this adaptation. Seventeen out of the 40 items of English MSCRIM that were not familiar to Yoruba culture were modified by the expert committee in order to adapt it to Yoruba culture. The Yoruba culture adapted MSCRIM was then translated into Yoruba language by two forward translators who eventually produced consensus translations. The consensus's translations was back-translated into English by two back-translators and was reviewed again by the expert committee to produce pre-final Yoruba version. The pre-final Yoruba MSCRIM was pre-tested on 30 Yoruba stroke survivors (as recommended by AAOS guidelines) who were also interviewed for cognitive debriefing. The expert committee reviewed these feedbacks and modified another 22 unfamiliar items. An extra option of ''not available'' was added to the response scale in domain 2 and 5 to produce final Yoruba MSCRIM. The reason for the addition of extra option of ''not available'' to these domains was to differentiate the items among the stroke survivors who have the ability to perform those activities on the items from those who do not have the facilities for the activities on the items.

For the validation process, the adapted English and the final Yoruba were administered to 60 (30 males) stroke survivors on the same day. Final Yoruba MSCRIM was re-administered again to the stroke survivors after one-week of the first administration.

The mean age was 59.98±10.32 years. The participants' total scores of the adapted English did not significantly different from the finalYoruba MSCRIM (z=-0.00 at p=1.00). For concurrent validity, there was no significant difference in participants' domain scores between the adapted English and final Yoruba MSCRIM (z=-0.14 to -1.42, at p=0.00). There was significant correlation in participants' total scores between final Yoruba MSCRIM on two occasions (r=0.89, at p=0.00) provides evidence of test re-test reliability. For internal consistency, there was significant correlation between participants' total scores and domain scores on final Yoruba MSCRIM (Cronbach's Alpha correlation coefficient ranged from α=0.36 to 0.96, at p=0.00).

The Yoruba MSCRIM scale is a valid, reliable, internally consistent and suitable to measure community re-integration among stroke survivors who are Yoruba-speakers. It is therefore recommended for evaluating community re-integration among Yoruba-speaking stroke survivors.

Key words: *Cross-cultural adaptation, Maleka Stroke Community Re-Integration Measure, Post-stroke community re-integration.*

Word Count: 499.

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CHAPTER ONE

1.1 Introduction

Stroke is a rapid focal or global neurological dysfunction following spontaneous haemorrhage or infarction in the central nervous system resulting only from vascular cause irrespective of the duration of symptoms (Saver, 2008). When blood flow to the brain is impaired, oxygen and important nutrients cannot be delivered. The result is abnormal brain function (Mayo, 2006). Blood flow to the brain can be disrupted by either a blockage (ischaemic) or rupture of an artery to the brain (hemorrhagic) (Mayo, 2006). It is a disabling event that can affect all aspects of a person's life (Mayo *et al*, 2002; Robinson-Smith 2002). The changes and related stigma of stroke can lead to a state of isolation and fear, which can make it difficult to engage in the recovery process (Anderson, 2010). The advent of better treatment such as thrombolysis and improvements in acute services has resulted in increased survival of people affected by stroke with many of such survivors ending up with long-term disabilities that tend to restrict their daily functional tasks and their participation in community activities (National Audit Office (NAO), 2005; Pang *et al*, 2011)

The incidence of stroke is increasing worldwide, mostly due to the increasing aging population (Warlow, 2001). Stroke is now the third leading cause of death in the United States (Casper *et al*, 2003). In most industrialized countries, it accounts for 10-12% of all deaths and about 88% of the deaths attributed to stroke among adults over 65 years (Bonita, 1992). It was estimated that 700,000 American residents experienced a new or recurrent stroke, with an estimated 500,000 having their first stroke each year (Casper *et al*, 2003). In 1999, a total of 167,000 deaths occurred in USA due to stroke, of these, approximately half occurred out of hospital (Casper *et al*, 2003). The age-adjusted annual death rate is 116 per 100,000 populations in the USA, 200 per 100, 000 in the UK and 182 per 100,000 in Germany. Japan and Finland experienced the highest age-adjusted rates (Appelros *et al*, 2002). The age-adjusted rate of 145.6 per 100,000 populations in Kuwait is low due to the younger average age of the Kuwaiti population (Abdul-Ghaffar *et al*, 1997). There is a higher rate in Afro-Caribbean population than the Caucasian (Kumar and Clark, 1999). Global death reported as a result of stroke (Stroke Association, 2014; World Health Organisation (WHO), 2014) and is a leading causes

of disease burden worldwide (Lopez and Mathers, 2006). It is a major cause of neurological admissions in Nigeria (Ojini and Danesi, 2003; Centers for Disease Control and Prevention (CDCP), 2007; Obiako *et al*, 2011;Owolabi and Nagoda, 2012). The state of those who survived stroke have been reported (Billinger *et al*, 2014). More than 20% of individuals who survive stroke will continue to receive institutional care for the rest of their life (Billinger *et al*, 2014) and about one-third needed long-term rehabilitation (CDCP, 2007). Stroke is therefore a threat to global health, claiming hundreds of thousands of lives in people of productive age (Feigin, *et al*, 2013).

Community support in terms of re-integration into their community is essential for stroke survivors after the event of stroke (Wade and de Jong, 2000; Care Quality Commission Special Review (CQCSR), 2011; Stroke Association, 2012). Even after most of the survivors returned into residential care, comprehensive community re-integration based on their personal aspects that are important to their lives are rarely focused (Palmd Glass, 2003; Owolabi and Ogunniyi, 2009; Muttlage *et al*, 2013).These often resulted into inadequate rehabilitation outcome (Calmels *et al*, 2011). The common sequence of these are inadequate social integration, poor social interaction and loss of pre-morbid roles and family responsibilities (Kersten *et al*., 2002; WHO, 2014). These often related to stress, depression, fatigue, isolation, decreased participation in healthy activity and poor treatment compliance (Calmels *et al*, 2011; Lerdal *et al*, 2011).

Community re-integration is the assumption of culturally acceptable lifestyle and development of appropriate environmental social roles following disability after stroke and its measure is a multidimensional construct that may include several domains (Sander *et al*, 2010; Pang *et al*, 2011). A reliable and valid outcome measures are required for its measurement (Kersten *et al*, 2002). The International Classification of Functioning, Disability and Health, known as the ICF was developed by the World Health Organisation (WHO) for application in various aspects of health (Salter *et al*, 2005a). The ICF belongs to the international classifications that provide a framework to code a wide range of information about health e.g. diagnosis, functioning and disability and it uses standardised common language permitting communication about health and health care across the world in various disciplines and

sciences (WHO, 2001). The overall aim of the ICF is to provide a unified and standardised language and framework for the description of health and related states. The domains are described from the perspective of the body, the individual and society; namely body function and structure; activities and participation.The re-integration begins in the hospital and continues through to the patient's home. The patient's home context is different from that of a hospital (Gjersing *et al*, 2010). According to the online English Oxford dictionary, the word "context" refers "to the surroundings, circumstances, personal factors (culture, level of education and spoken language), environment, background, or setting which determine, specify or clarify the meaning of an event" (Maleka *et al*, 2008, Mudzi., 2009).

In the past, the focus of rehabilitation has been primarily institution-based, so less attention has been paid to the development and structuring of community-based rehabilitation services and re-integration back into the community (Maleka *et al*, 2008; Struthers, 2001). As a result, there are few outcome measures that assess participation restriction or community re-integration. Due to early discharge, minimal or no rehabilitation in the hospitals (Maleka *et al*, 2008; Mudzi. 2009), limited functional independence at discharge from a hospital (Mamabolo *et al*, 2009) and underdeveloped community based rehabilitation (Garbusinski *et al*, 2005; Rhoda and Henry, 2006), there is an increasing awareness of the need for the provision of community-based rehabilitation. However, the lack of outcome measures on the participatory dimension of the ICF framework spectrum becomes more evident particularly with long-term disability such as that experienced after stroke to qualify and quantify community re-integration (Mamabolo *et al*, 2009).

Numerous standardized scales are in existence based on this WHO ICF (Salter *et al*, 2005a). There are some that only include items or domains that evaluate patients' re-integration in relation to their environment which include: Participation Scale (Van Brackel *et al*, 2006), EuroQoL Scale (Salter *et al*, 2005b). Outcome measure for assessing integration of person with brain injury during traffic accident include: Community Integration Measure and Community Integration Questionnaire (Brain Injury Resource Foundation, 2004). There are few scales that measure only community re-integration and are generic. They include: Reintegration into Normal Living Index, (Wood-Dauphinee, 1988); London Handicap Scale (Harwood *et al*, 1994). The specific scales developed for measuring community re-integration after

strokeinclude theSubjective Index of Physical and Social Outcome(SIPSO) (Trigg and Wood, 1999) and Maleka Stroke Community Re-Integration Measure(MSCRIM) (Maleka *et al*, 2010).

Standardised scales for evaluating treatment effectiveness are also important for quality outcome of management in stroke care (Salter *et al,* 2008). However, for such scales to be useful, they need to take the contextual factors in which patients' lives into consideration (Akinpelu *et al*, 2007). Several standardized scales have been adapted to Nigerian culture. They include the Pain Rating Scale (Akinpelu and Olowe, 2002), WHO Quality of Life-Short Form (Akinpelu *et al*, 2006), Ibadan knee/hip osteoarthritis outcome measure (Odole and Akinpelu, 2006), Visual Analog Scale (Akinpelu, 2009). The MSCRIMwas developed for measuring community re-integration among stroke survivors and first tested among South Africa stroke survivors (Maleka *et al*, 2010). There are two versions for this scale. These are rural and the urban versions. Both versions has six domains each but the rural version has 36 items while urban version has 40 items. Urban version of MSCRIM would be used for this study.

The MSCRIM was recently adapted to Igbo culture and environment without translation into Igbo Language (Okoye *et al*, 2015). Nigeria is a multi-lingual country with three major languages which are Yoruba, Hausa and Igbo. To facilitate a wide utility of MSCRIM in the Nigerian clinical setting, there is the need to adapt, translate and validate the scale into Yoruba language.

1.2 Statement of the Problem

One of the major goals of rehabilitation following stroke is to get the patient re-integrated back into the community. The need to measure community re-integration post stroke had led to the development of standardised scales. One of these scales is Maleka Stroke Community Re-Integration Measure (MSCRIM). It was developed in South Africa by Dr. Douglas Morake Maleka (Maleka *et al*, 2010).

The definition and components of community re-integration vary and differ depending on the setting and target population (Winstein *et al,* 2003). Although there are similarities amongst the

different outcome measures, differences occur in the definition and components of community re-integration based on contextual factors Gjersing *et al*, 2010). Except for the Participation and MSCRIM Scales, all the outcome measures reviewed were formulated in more affluent and developed countries(Van Brackel *et al*, 2006; *Maleka et al, 2010*). Participation scale has its limitation to the element of redundancy and its length and constant comparison of the interviewee to his/her peers, which may be confusing to the respondent(Van Brackel *et al*). Furthermore, some scales were considered by the author to be too long for use in a largely illiterate population where questionnaires are better when interviewer administered, such as: the Craig Handicap Assessment and Reporting Technique, the Stroke Impact Scale, Participation Scale, the Stroke-Adapted Sickness Impact Scale Profile (Duncan *et al,* 2001;Van Brackel *et al*, 2006). Many scales were scored based on the visual analogue scale system and some use five or more points Likert scale, whichis an abstract concept for people with low educational levels and does not lend itself easily to translation, these include: the Reintegration to Normal Living Index, the London Handicap Scale, the Stroke Impact Scale, the Community Integration Measure, the Stroke Specific Quality of Life, and the Subjective Index of Physical and Social Outcome (Brain Injury Resource Foundation, 2004;Harwood *et al*, 1994).

Only six of these scales had been validated in a stroke population and five or more points Likert scale were used in their scoring, in which case, the calculation of the final score is complicated. These are: the Reintegration to Normal Living Index, the London Handicap Scale, the Stroke Specific Quality of Life, the Subjective Index of Physical and Social Outcome, the Stroke Impact Scale and the Stroke-Adapted Sickness Impact Scale Profile (Duncan *et al,* 2001; Straten *et al*, 1997; William *et al,* 1999). Many scales were not specific to community re-integration and included very few items under the participatory domain viz: the Reintegration to Normal Living Index, the London Handicap Scale, the Stroke Specific Quality of Life, the Stroke Impact Scale, the Nottingham Health Profile, the EurolQol Quality of life Scale, the Soweto Stroke Questionnaire, the Medical Outcomes Study Short Form 36 and the Stroke-Adapted Sickness Impact Scale Profile (Salter *et al*, 2005b; Ware and Sherboume, 1992). Based on these reviewed of the tools developed to measure community re-integration, there did not appear to be a tool that would be appropriate to measure community re-integration following stroke in a black

African community; a measure that takes into account contextual, cultural, environmental, multi-lingual and illiteracy factors, hence the development of MSCRIM (Maleka *et al*, 2010).

The MSCRIM was not too long for use in a largely illiterate population and no element of redundancy in its usage. The scoring points are based on either three points (0-2) or four points (0-3) scale compared to some that used five or more points Likert scale, whichis an abstract concept for people with low educational levels and does not lend itself easily to translation (Maleka *et al,* 2010). It was developed and validated for measuring community re-integration among stroke survivors in South Africa as interview administered and it measures all aspects of ICF continuum (Maleka *et al,* 2010). It had been previously adapted into Igbo culture and environment but not Yoruba culture in Nigeria (Okoye *et al,* 2015). The fact that South Africa culture is similar to that of Nigeria in some areas, there is still needs to adapt the MSCRIM to the Nigeria culture and environment in order to promote its use in Nigeria. Nigeria is multi-lingual country, with three major indigenous languages (Yoruba, Hausa, and Igbo). Therefore, this research was aimed at cross-culturally adapt and translate the MSCRIM into Yoruba and to validate this Yoruba cross-culturally adapted MSCRIM among Yoruba-speaking stroke survivors for its utility on those survivors who may not have proficiency in English language. Hence, the following questions needed answers from this study:

1. Would the finalYoruba MSCRIM be a reliable scale for measuring community reintegration among Yoruba population of stroke survivors in Nigeria?

2. Would the final Yoruba MSCRIM be a valid instrument in measurement community re-integration among Yoruba population of stroke survivors in Nigeria?

1.3 The Study Aims

The main focus was to:

1. Culturally adapt and translate original English MSCRIM into Yoruba language.
2. Determine validity, reliability and internal consistency of the final Yoruba MSCRIM.

1.4 Hypotheses

1.4.1 Sub-Hypotheses

1. There would be no significant difference in participants' total scores between adapted English and final Yoruba MSCRIM. (Concurrent validity).
2. There would be no significant difference in participants' Activity of Daily Living (ADL) and self-care domain scores betweenadapted English and final Yoruba MSCRIM (Concurrent validity).
3. There would be no significant difference in participants' social interaction and relationship domain scores betweenadapted English and final Yoruba MSCRIM (Concurrent validity).
4. There would be no significant difference in participants' home/family responsibilities and appearance domain scores between adapted English and final Yoruba MSCRIM (Concurrent validity).
5. There would be no significant difference in participants' social interaction domain scores between adapted English and final Yoruba MSCRIM (Concurrent validity)
6. There would be no significant difference in participants' extended family responsibilities domain scores between adapted English and final Yoruba MSCRIM (Concurrent validity)
7. There would be no significant difference in participants' work and education domain scores between adapted English and final Yoruba MSCRIM (Concurrent validity)
8. There would be no significant correlation in participants' total scores between final Yoruba MSCRIM measured on two occasions (test-retest reliability)
9. There would be no significant correlation in participants' ADL and self-care domain scores between final Yoruba MSCRIM measured on two occasions (test-retest reliability)
10. There would be no significant correlation in participants' social interactions and relationship domain scores between final Yoruba MSCRIM measured on two occasions (test-retest reliability)
11. There would be no significant correlation in participants' home/family responsibilities and appearance domain scores between final Yoruba MSCRIM measured on two occasions (test-retest reliability)

12. There would be no significant correlation in participants' social interactions domain scores between final Yoruba MSCRIM measured on two occasions (test-retest reliability)
13. There would be no significant correlation in participants' extended family responsibilities domain scores between final Yoruba MSCRIM measured on two occasions (test-retest reliability)
14. There would be no significant correlation in participants' work and education domain scores between final Yoruba MSCRIM measured on two occasions (test-retest reliability)
15. There would be no significant correlation between participants' total scores and ADL and self-care domain scores on final Yoruba MSCRIM (internal consistency).
16. There would be no significant correlation between participants' total scores and social interactions and relationship domain scores on final Yoruba MSCRIM (internal consistency)
17. There would be no significant correlation between participants' total scores and home/family responsibilities and appearance domain scores on final Yoruba MSCRIM (internal consistency)
18. There would be no significant correlation between participants' total scores and social interactions domain scores` on final Yoruba MSCRIM (internal consistency)
19. There would be no significant correlation between participants' total scores and extended family responsibilities domain scores on final Yoruba MSCRIM (internal consistency)
20. There would be no significant correlation between participants' total scores and work and education domain scores on final Yoruba MSCRIM (internal consistency)

1.5 Delimitations of the study

The study was delimited to:

1. Stroke survivors who were ≥18 years, and understand English and Yoruba languages

2. Yoruba stroke survivors who must have stayed in a Yoruba community for at least six months prior to the onset of stroke and must have stayed for another six months post-stroke in the same community.

1.6 Limitation of the study

Although it would have been more desirable for the participants to have been recruited from various parts of the Yoruba speaking states of Nigeria, it was limited to Lagos based on the issue of consistent attrition documented concerning stroke patients in Nigeria and it would be a little difficult to do a follow up especially for the second measure of the Yoruba version of the instrument. Hence, the participants were recruited from public hospitals in Lagos state being a metropolitan state,

1.7 Significance of the Study

It is hoped that the outcomes of this study would provide apsychometrically sound finalYoruba MSCRIM that would facilitate community re-integration assessment among Yoruba-speaking stroke survivors who speak Yoruba language but are not literate in English language. The final Yoruba MSCRIM would ensure that such individual would not be excluded from being assessed for community reintegration after stroke.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

Stroke is a rapid focal or global neurological dysfunction following spontaneous haemorrhage or infarction in the central nervous system resulting only from a vascular cause irrespective of the duration of symptoms (Saver, 2008; Sacco *et al*, 2013).Stroke is a leading cause of long-term disability which results from brain cell damage due to either an interruption of the blood supply to the brain or hemorrhage into the brain tissue. As a result of an increasing older adult population, coupled with an ever improving acute phase survival rate, the absolute number of persons with stroke is increasing.Of the individuals who survive, approximately 75 to 85% are ultimately discharged home (Mudzi, 2009). Ninety percent of stroke survivors have some functional disability with mobility being a major impairment (Portelli *et al*, 2005). Impairments resulting from stroke, such as muscle weakness, pain, spasticity and poor balance can lead to a reduced tolerance to activity and further sedentary lifestyle (Michael *et al*, 2005). Improved walking ability is one of the most often stated goals by people with stroke undergoing rehabilitation and with those individuals living with stroke (Latham *et al*, 2005). Although 65% to 85% of stroke survivors learn to walk independently by 6 months post stroke, gait abnormalities persist through the chronic stages of the condition(Portelli *et al*, 2005).

One in every 10 deaths is as a result of stroke (WHO, 2014)). Reports in 2014 indicated that 39,284 stroke patients died in which 16,224 were men and 23,060 women (WHO, 2014). These occurred in four countries of England, Scotland, Wales and Northern Ireland (Stroke Symptoms and Signs, 2014; WHO, 2014). Worldwide, approximately 15 million who suffered stroke each year resulting into 6.7 million deaths (WHO, 2014a). Stroke is accounting for 77.6% admissions in hospital based studies in Nigeria (Ojini and Danesi, 2003; Owolabi and Nagoda, 2012) and 17% deaths (Owolabi and Ogunniyi, 2009; Obiako *et al*, 2011). The effect of stroke has a profound human and economic consequences which make it difficult for stroke survivors to engage in a proper recovery process (Anderson, 2010; WHO, 2014)

World Health Organization predicts that disability-adjusted life years (DALYs) lost to stroke (a measure of the burden of disease) will rise from 38 million in 1990 to 61 million in 2020 (WHO, 2014a). According to WHO, approximately 17 million deaths are attributed to heart disease and stroke and these accounted for the one third of all deaths globally (WHO, 2014a).The World Health Organization has estimated that stroke caused 5.7 million deaths in 2004 which accounted for 9.7% of deaths in the world (General Register Office for Scotland (GROS), 2014; WHO, 2014). Of these deaths, more than 85% occurred in low- income and middle-income countries (WHO, 2009). By 2020, the major causes of disability and deaths will be stroke and heart diseases (WHO, 2014b). One in every 10 deaths is caused by stroke; thus, it is the third most common cause of death in the developed countries, exceeded only by coronary heart disease and cancer (Stroke Association, 2014; Stroke Symptoms and Signs, 2014)). Worldwide, about 15 million people suffer stroke each year causing 6.7 million deaths (WHO, 2014a). One-third die and one-third are left permanently disabled (WHO, 2014b). China has one of the highest rates of mortality (19.9% of all deaths), along with Africa and parts of South America (Kim and Johnson, 2011). Stroke occurs approximately 152,000 times a year in the UK (Townsend*et al,* 2012). Stroke mortality rates in the UK decreased by 46% from 1990 to 2010 (Feigin, *et al*, 2013; Wang*et al,* 2013).

People from the most economically deprived areas of the UK are around twice more likely to have a stroke and three times more likely to die from a stroke than those from the least deprived areas (Scarborough, *et al,*2009*;* Public Health England (PHE), 2015). People from 'low and middle income' countries on average have strokes up to five years younger than people from higher income countries (Feigin, *et al,*2013). Studies have shown that London and northern regions in England demonstrate higher indications of social deprivation (Department for Communities and Local Government (DCLG), 2010).Moreover, evidence from several sources indicate that the major risk factors of stroke are increasing at an alarming rate throughout most of the continents over the last 6-9 years (Marijon *et al,* 2007; Belue et al, 2009). Black people are twice as likely to have a stroke and at a younger age than white people (Wang *et al*, 2013). This is partly due to a higher prevalence of high blood pressure, diabetes and sickle cell disease (Wang *et al,* 2013). Black people are twice as likely to have high blood pressure than white people and particularly black Caribbean, are also more than twice as likely

to have diabetes than white people but white people are more likely to have an irregular heartbeat, smoke and consume excess alcohol (Scarborough, *et al*,2009; Wang, *et al*, 2013). South Asian people have strokes at a significantly younger age than white and are more likely to have high blood pressure, high cholesterol and diabetes than white people (Banerjee, *et al,* 2009). South Asian men, particularly Indian men and South Asian women, particularly Pakistan women, are more than twice as likely to have diabetes as the UK general population while Bangladesh and Pakistan men are more likely to smoke than the rest of the UK population (Scarborough, *et al,*2009; Wang, *et al,* 2013). Stroke is therefore a threat to global health, claiming hundreds of thousands of lives in people of reproductive age, disrupting families and depleting work force (Health and Social Care Information Centre (HSCIC), 2015).

While the stroke survivors are still in hospital, it is good to acknowledge the roles of healthcare professionals regarding community re-integration services, after discharge, the access to healthcare services may no longer be sufficiently available to them (Gjersing *et al,* 2010). At this stage, they will rely on support from peer groups and families for such services to serve as means of relief to them (Dennis, 2003), and these provide relationship that promotes better experience, social re-validation, and feelings of empowerment (Ketokivi *et al,* 2000). This will complement the supports from healthcare professionals and friends for better societal functioning (Kessler *et al*, 2009).

2.2 The Epidemiology of Stroke

The incidence rates of stroke differ across countries and regions. In the United Kingdom, the incidence of stroke ranges from 115/100,000 populations to 150/100,000 populations (WHO, 2014). The occurrence of stroke is 25% more in men at younger age compared to women (Feigin and Lawes, 2003). Nevertheless, as age increases, the females die more and have higher incidences of stroke than men (WHO, 2014). The incidence of stroke is so enormous to the extent that the first time stroke would occur in at least every other second in the world (Townsend *et al*, 2012; WHO, 2014).

Every part of the world is negatively affected by stroke. In Sweden, one in 310 per 100,000 persons suffer a first stroke every year with a first-month lethality rate of about 20% or

60/100,000, making stroke the third major cause of death (Appelros and Nydevik, 2002). During the last decades, the incidence has been relatively constant, but mortality and lethality, often called case fatality rate, has dropped in Sweden (Harmsen and Tsipogianni,1992) and world-wide (Feigin and Lawes, 2003; Truelsen and Piechowski-Jozwiak, 2006). The pattern shows little variation between countries, except for increasing incidences in Ukraine, Russia and Japan and high prevalence in Italy and United Kingdom (Truelsen and Piechowski-Jozwiak, 2006).

There has been steady increase of stroke incidence in Nigeria (Obiako *et al*, 2011). The actual incidence or prevalence studies in Nigeria is hospital-based and varied from 0.9% to 4.0% (Ogun *et al*, 2005; Obiako *et al*, 2011), accounting for about 77.6% of neurological admissions in Nigeria (Ojini and Danesi, 2003; Talabi, 2003; Owolabi and Nagoda, 2012) and 17% of death (Ogunniyi, 2009; Obiako *et al*, 2011).

2.3 Burden of Stroke

There are very few systematic reviews of stroke mortality, prevalence and incidences in sub-Saharan Africa; only community based incidence studies will accurately reveal the burden of stroke (Connor *et al,*2007). Community-based studies in African countries have shown that cerebrovascular diseases represent up to five to 10% of the causes of death, and that the prevalence of important risk factors for stroke (hypertension, diabetes and smoking) is increasing (Khan and Tollman, 1999; Ogun *et al,*2000; Walker *et al,*2000; van der Sande *et al,*2001). Until recently cardiovascular diseases were thought to be diseases of the rich but they are now emerging as prominent diseases in poor socioeconomic societies (Connor *et al*, 2004). However, little is known about the prevalence, burden and nature of stroke in low-income countries, particularly in sub-Saharan Africa (Connor *et al*, 2004; Feigin *et al*, 2003; Connor *et al,*2007; Owolabi and Nagoda, 2012; Feigin *et al,* 2013).

For many years stroke has been recognized as an important cause of death and disability in high-income countries, however, its importance in low-income countries has been emphasised (Ogun *et al*, 2000; Feigin *et al*, 2003). The prevalence disabling stroke in Africa is thought to be as high as it is in high income countries (Feigin *et al,*2003; Ogungbo *et al*, 2005; Connor *et*

*al,*2007). The prevalence of stroke is likely to increase in Sub-Saharan Africa in the future as the population ages and undergoes continuous epidemiological transitions, moving from a pattern of disease dominated by infection, perinatal illness, and other poverty related diseases to one dominated by non-communicable diseases (Ogungbo *et al*, 2005; Connor *et al*, 2007; Connor *et al*, 2009).

The average length of stay (LOS) in hospital following a stroke in Nigeria is short (Ogungbo *et al,*2005; Mudzi, 2009), with the average physiotherapy contacts for a patient with a stroke being three weeks (Komolafe *et al*, 2007). It can therefore be deduced that a significant number of patients may be discharged early in the acute stage of stroke without receiving adequate in-patient rehabilitation services (Ogungbo *et al*, 2005; Mudzi, 2009; Obiako *et al,*2011). This sentiment is shared by Teasell *et al* (2004) and Mamabolo *et al* (2009), in their study to determine post discharge functional improvements in patients with stroke. They concluded by saying that patients who have had a stroke have limited functional abilities at discharge from hospital. Therefore, many patients are sent home inadequately rehabilitated and are as a result likely to be poorly reintegrated in their communities (Teasell *et al,* 2004; Ogungbo *et al*, 2005; Mudzi, 2009; Obiako *et al*, 2011; Feigin *et al*, 2013). The re-integration into community following stroke is a lengthy process. The adequate period for a person with stroke to be reintegrated back into the community following a disabling condition such as stroke is six months to one year (Ogun *et al*, 2000; Feigin et al, 2003; Ogungbo *et al*, 2005; Stark et al. 2005).

In addition, as a result of absence or poorly developed/inadequate community-based rehabilitation services in Africa, some patients may not receive enough rehabilitation services at home or in their communities (Garbusinski *et al*, 2005; Rhoda and Henry, 2006; Okoye *et al*, 2015). Early discharge, very little in-patient rehabilitation, limited functional independence at discharge as well as a lack of community-based rehabilitation services may impact on community reintegration following a stroke as a result of limited ability to participate in family and community activities (Feigin *et al*, 2003; Teasell *et al,* 2004; Ogungbo *et al*, 2005; Stark *et al*,. 2005; Okoye *et al*, 2015).

The consequences of stroke are tremendous and has a profound human and economic consequenceswhich may vary according to the localization and size of brain lesions (Winstein *et al*, 2003). It has been reported as the major cause of the lingering functional limitation among stroke survivors and imposes a heavy emotional and financial burden on the family and care-givers in particular and society in general (Komolafe *et al,* 2007). It is a principal cause of long-term disability and the third most common cause of death in developed/industrialized counries (Stroke Association, 2014; World Health Organization(WHO, 2014). In the United State (US), the total cost of stroke for 2008 was estimated to exceed US$65 billion, while, across the European Union (EU) countries, the total annual cost of stroke was estimated to be €27 billion (Di Carlo, 2009). For several decades, ischaemic heart disease and stroke have been the highest causes of death and disability in all the regions of the world except Sub-Saharan Africa where communicable disease, trauma, infant mortality, HIV and AIDS have been dominant (Mathers, 2002). However, the new millennium has increasing reports of a growth in the burden of cardiovascular disease in Africa consistent with the predictions made at the turn of the last century (Ntsekhe and Damasceno, 2013). Consequently, the burden of disease that will be caused by coronary heart and cardiovascular diseases has been projectedto double or supersede HIV and AIDS worldwideby year 2030 as the leading causes of morbidity and mortality (Mathers, 2000; Feigin, *et al*, 2013).

The sequence of stroke include loss of sensation and balance, disorder of cognitive function (memory/thinking loss) or coma after stroke. Other neurological defects of stroke include problems with vision (homogenous hemianopia), perception (unilateral neglect), attention deficits, sensation loss (paraesthesia), proprioceptive and stereognosis loss, communication deficits (aphasia, dysphasia), disorientation in spatial awareness, loss of strength and mobility, swallowing, bladder and bowel control (Porter, 2003; Teasell, 2003, WHO, 2014). Stroke causes not only physical impairment, but also leads to participation restriction, depression and fatigue (Patel *et al*, 2006). Most of them live with residual physical impairments with sedentary lifestyle which may result into concomitant secondary health challenges (Calmels *et al*, 2011). Some of the challenges related to sedentary lifestyle are poor cardiorespiratory fitness and deconditioned which is related to limitation in functional performance (Hamzat and Peters, 2009; Muttlage *et al*, 2013).

More than 20% of stroke survivors require basic care in feeding, dressing, toileting throughout their lives (Sacco *et al*, 2013), one-third require long-term services to achieve recovery (CDCP, 2007). About 3% of all stroke survivors live dependently in their ADL (Teasell *et al*, 2004). Over half of them sustained motor disability while two third remain disabled 5years later, 37% mildly and 29% moderately or extremely disabled (Bonifer and Anderson, 2003).

With the improved healthcare and advancements in clinical practice and rehabilitation, more survivors are returning to their communities with better functional outcomes. Nevertheless, a good number of them still exhibit poor recovery in terms of reintegration into their various community (Wood *et al*, 2010). Inadequate social interaction, social isolation, reduced interpersonal and emotional disorders, reduced self-esteem and poor motivational outcome are common sequel of stroke as a result of cognitive dysfunction, physical impairments and communication difficulties (Mukherjee *et al*, 2006; Link and Phelan, 2010). Therefore, it is highly imperative that more insight into understanding community reintegration concept among the stroke survivors be a focus of contemporary research (Horwitz, 2005; Haas 2008). Continuous support from peer group and society for stroke survivors is essential when the patient is returning to the community (Link and Phelan, 2010).Therefore, community reintegration measures which incorporate social integration and participation of stroke survivors in community healthy activities with series of therapeutic and functional exercises following stroke helps to prevent deterioration to cardiovascular system and restoration of functions of the affected parts (Boden-Albala *et al*, 2005).

2.4 CommunityRe-Integration after stroke

Many stroke survivors often express dissatisfaction even after satisfactory levels of independence have been achieved especially in daily living activities and mobility following rehabilitation (Mayo *et al*, 2002). Moreover, re-integration based on the resumption of adequate functioning and achievement of pre-morbid social and successful psychosocial roles still remain great challenges (Palmer and Glass 2003). Hence, many stroke survivors still remain grossly affected in their areas of participation in the communities due to poor outcome after rehabilitation and had resulted into increased rate of survivors' dependency (Mayo *et al*.

2002). The results of the studies conducted among survivors in Nigeria by Owolabi and Ogunniyi, (2009) and Hamzat and Peters (2009) had the similar results with the above findings.

Other studies on the item to item assessment that emphasised some items in order of importance to functional independence and cognitive ability of survivors cited items such as improved communication skills, self-reliance, ability to exchange visit between families and friends, ability to experience stress and sex feelings, memory and power to divulge information of past events about self / others, power to initiate good plans , render assistance to neighbour, returning to former job post stroke were receiving low satisfaction ratings (Robinson-Smith *et al*, 2000). Inability to perform these activities could lead to social isolation(Palmer and Glass 2003). This report correlated with the study of Kersten *et al* (2002), who concluded that societal isolation after first stroke is a potential chances for persistent reoccurrence of stroke or even death, whereas, societal isolation is defined as "identifying yourself with comparative few or little than three persons to call on or pay visit to in their homes" (Kersten *et al*, 2002).

However, intervention that address the barriers to participation of the stroke survivors in beneficial and functional activities and which keep the individual with stroke isolated is important during this period and should be reinforced so as to prioritise independence, ameliorate ignorance, improve participatory ability of the survivors in beneficial activities (Kersten *et al*. 2002). Community has roles to play in the area of cooperation with the healthcare professionals to keep the stroke survivors awakenabout their ignorance on the effects of participation restriction and isolation from the community, and this would reduce the effects and consequences of stroke on survivors and close the information gap that negatively affect stroke survivors.

Physiotherapy rehabilitation and intervention isthe major alternative for patients with stroke, thus, minimizing sequences of stroke on survivors thereby improving their functional capability and independency which in-turn lead to good quality of life post stroke (Saladin, 2001). However, the rate at which they respond to rehabilitation and of course, their outcome or prognosis, depends on age, early referrer to physiotherapy, presence of co-morbid conditions and severity of neurological deficits of stroke on the survivors(Palmer and Glass 2003).

2.5 Determinants and Components of Community Re-integration

The main focus of stakeholders for stroke management had been shifted from mere survival to how useful and best a patient could be managed back into his/her pre-morbid conditions, thus necessitating the availability of psychometrically sound scales for assessing the level of community reintegration post-stroke (WHO, 2008; Wood *et al*, 2010). However, such scales must take the contextual factors in which patients live into consideration (Wood *et al*, 2010).

The importance of survivors with chronic disorders to function well in the society have been highlighted (WHO, 2008). This concept could be used for assessment of the component of participation in order to obtain strong picture of recovery that is being used as important tools to estimate improvement (Wade and de-Jong, 2000). This often called for social integration, ability to return to working and driving capability (McKevitt *et al*, 2004). Little documentation was recorded on returning to school post stroke especially university education, as reported by study of McKevitt *et al*, (2004), that stroke do rarely affect people of school going age. Nevertheless, many qualitative studies had documented on the effects of stroke on the survivors and highlighted the aspects of life on which rehabilitation should be based upon during stroke managements. Their emphases were on psychosocial factors like depression, poor self-esteem, disorders of activities and lack of abilities for self-reliance, poor mood and emotional disorders, participation restriction and isolation " (Salter *et al*, 2008).

In stoke rehabilitation, there are components on which re-integration is based on depending on the setting and target population of the areas being researched (Maleka *et al*, 2010). Literature commonly identified four domains which are: Social, physical, functional, and participation, in relationship to ICF classification (Karlsudd, 2007). However, there are problems in defining re-integration and its components because it had resulted into conflicting ideas in developing appropriate scales on which survivors could be evaluated (Maleka *et al*, 2010).

2.6 Standardized Scales for Measuring Community Re-integration.

Table 2.1 provides a summary of some standardised outcome measures commonly used for assessing some aspects of community reintegration in stroke survivors.

2.6.1 Reintegration to Normal Living Index: (RNLI). The RNLI was developed by Wood-Dauphinee *et al*, (1988), to assess the global functional status of patients who require long-

term rehabilitation, including those with stroke. The information to determine the components of the Index were collected through interviews with professionals, patients and caregivers. The following domains of RNLI are related to reintegration to normal living, namely: Indoor activities, community, distant mobility, self-care, daily activity, recreational and social activities, general coping skills, personal relationships, presentation of self to others.

To score 11 items on this scale, recipients have to mark the degree of integration on a 10 cm visual analogue scale (VAS), the longer the distance of the mark from the anchor point at zero, the greater the perceived level of integration. The total score is the sum of all 11 items. The adjusted score is the total score divided by 110 multiplied by 100%. The RNLI has adequate inter rater reliability ($r = 0.62$; $p = 0.00$) and high internal consistency (Cronbach alpha= 0.90). Due to the scale being developed from participants with stroke perceptions, the content validity was considered good because the scale was developed with consideration for stroke survivors (Wood- Dauphinee *et al*,1988). RNLI was validated on adults with mobility limitations in community and not on re-integration into the community by Stark *et al* (2005), and was considered by the authors to be a valid and reliable tool.

The limitation with regards to the use of RNLI is that it is not a stroke specific measure and the scoring system uses a VAS which is thought to be a very abstract concept (requires abstract thinking ability) and is difficult to understand by patients who are illiterate (Yazbek *et al*, 2009).

2.6.2 Craig Handicap Assessment and Reporting Technique (CHART): The CHART was developed by Whiteneck *et al*, (1992), to provide a simple, objective measure of the degree to which impairments and disabilities result in handicap (using the nomenclature at the time) (Mellick, 2000). It was initially developed for use with persons with spinal cord injury. However, the revised CHART (Mellick, 2000) has since been found to be an appropriate measure of handicap that can be used with individuals having a range of physical or cognitive impairments, including those caused by stroke. The instrument was designed to be administered by interview, either in person or by telephone and takes approximately 15 minutes to administer. It is also possible to use the instrument as a mailed or self-administered questionnaire.

The scale has five of the WHO dimension (domains) of handicap and comprises 32 questions. The dimensions are as follows: physical independence, mobility, occupation, social integration, economic, self-sufficiency (Mellick, 2000). Each of the domains or subscales of the CHART are scored out of a maximum score of 100 points, which is considered the level of performance typical of the average non-disabled person. High subscale scores indicate less handicap, or higher social and community participation (Mellick, 2000). Tozato *et al*, (2005), tested the validity of the CHART on Japanese individuals with spinal cord injuries and they concluded that the CHART was useful as a measure of disability for Japanese individuals with spinal cord injury.

The limitation of the scale for this study is that its validity and reliability for use with people with stroke has not yet been investigated. Furthermore, the scale was designed to be interviewer administered either face to face or by telephone; the latter is a major problems in some areas with limited network coverage.

2.6.3 London Handicap Scale(LHS): The London Handicap Scale (LHS) was developed by Harwood *et al* (1994), to measure the disadvantage experienced as a result of ill health (Jenkinson *et al*,2000). It was developed for adults with physical and neurological impairments. Measures such as the LHS have great potential in the measurement of outcomes both in research settings and in the evaluation of clinical services for the purpose of audit and clinical governance (Jenkinson *et al*, 2000), as they measure participation in its entirety (though they still the old nomenclature). The LHS has six dimensions (domains) of the international classification of impairment, disability and handicap (ICIDH) (the predecessor to the ICF) which are similar to the CHART except for the orientation domain in LHS, namely: mobility, orientation, occupation, physical independence, social integration and economic self-sufficiency.

The scoring system is a six point Likert scale ranging from none to extreme. The LHS uses weighted scales to derive a single handicap measure between 0 (extreme disadvantage) to 100 (no disadvantage) from the response to six questions. The LHS appear to be a valid, reliable and acceptable measure (Harwood *et al*, 1994; Harwood and Ebrahim., 1995). The correlation between the LHS and other measures is very high ($r = 0.90$; $p = 0.009$).

However, the major disadvantage in using this measure is that the LHS uses a six point complicated Likert scale; this has been shown to be difficult to accurately translate into the context of the local African languages for patients to respond to (Yazbek *et al*, 2009; Grebe, 2009) and thus makes it difficult for patients with low educational backgrounds to understand or respond appropriately.

2.6.4 Subjective Index of Physical and Social Outcome.(SIPSO):

The SIPSO is a 10 item self-completed questionnaire that measures social/community reintegration following stroke (Trigg and Wood, 1999) and was developed in 1999 in the UK. The SIPSO has three domains of community reintegration, namely: Activities (every day activities, leisure activities), interaction, environment (Trigg and Wood, 1999).

The purpose of this outcome measure is to assess social/community integration following stroke. In the final draft of the outcome measure, the environmental factors were omitted as they failed to fulfil the criteria necessary for inclusion due to very low rotated factor loadings on factor analysis. The SIPSO has 10 items, with a five point Likert response scale. Kersten *et al* (2004), reported it to have very good internal consistency (Cronbach alpha = 0.91). The test-retest reliability (ICC coefficient = 0.96) as well as construct validity (Spearman Ranked Correlation Coefficient = -0.09).

The limitations of the use of this tool are: firstly, it is a self-completed questionnaire that was developed in a developed country (UK), a problem to most illiterate people. It uses a 5 point Likert scale which is abstract to most illiterate patients and difficult to translate to local languages (Grebe, 2009). The SIPSO includes most items which assess community reintegration but in the development of the tool, the environmental items were removed from the scale. Environmental factors form part of participation according to the ICF so this is a notable omission.

2.6.5 Community Integration Measure (CIM): The Community Integration Measure (CIM) McColl *et al*(2001), is a questionnaire developed for use with people with traumatic brain injury and comprises four factors constituting community reintegration: Assimilation, social support, occupation, independent living. The CIM has 10 items, each item has five response

options (ranging from five = always agree to one = always disagree). Scores for each item are summed up, giving a total score between 10 and 50. A total of 50 represent a high level of community integration. The CIM is reported to be a valid and reliable (r = 0.88 and internal consistency = 0.70) outcome measure (McColl *et al*, 2001).

CIM is a very short scale but it excludes the item "productivity of work", which is vital to the community reintegration of a patient who has had a stroke. Secondly, it focuses primarily on assessing impairments and activity limitation as opposed to participation. The major limitation of the use of this scale in a Africa context is its five point Likert scale; which as previously described is difficult to translate to the local languages. Thirdly the scale was developed for patients with traumatic brain injury and although the items are very generic, it is not specific to stroke. Lastly, the tool was developed as a self-administered tool, and although it could be interview administered, it does require a certain level of literacy.

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2.6.6 Community Integration Questionnaire (CIQ)

It was developed by Willer *et al* (1994),for the purpose of assessing social role limitation and community interactions in a patient with head injury. The scale is a self-report questionnaire comprising 15 items on 3 domains which were home, social and productivity. The scoring system is very item specific, for an example, items 1 to 6 are scored on a three point Likert scale and other items are scored on a dichotomous scale of yes or no. The CIQ score comes from the summation of the individual item scores and can range from 0 (poor integration) to 29 (high integration). Question 13, 14 and 15 are combined to form one item. The score for this question is chosen from variable patient responses. Scoring this question is very difficult as

some of the responses may not be applicable to the patients.It is a valid tool to assess community reintegration for patients with traumatic head injury (Willer *et al*, 1994.,Corrigan and Deming, 1995) butthe author acknowledges that its use and validity in stroke outcome still need to be assessed(McColl, 2001). The 5 responses options were difficult to understand and need a certain level of literacy.

2.6.7 Participation Scale (PS)

It was produced by Van Brackel *et al* (2006a), to assess social participation continuum -in relationship to ICF components- for the management purposes, stigma alleviation and social re- integration programmes in Nepal, India and Brazil. The scale possesses the same features to African settings. It is interview administered with 18 items and seven domains which include: Relationship, life in community, leisure life, education, work, economic, assisting others.

To score is derived from a respondent's peer ranging with either "yes", "sometimes", or "no", "irrelevant". The magnitude in the respondents' problems would be presented with 1 = no issue, 2 = little issues, 3 = minimal issues, 4 = maximal issues. Total sum of all scores and their rate of restriction to participations are ranged in the following order: (1) 0-12 -Nil significant restriction (2) 13-22 -Mildly restricted (3) 23-32 -Moderately restricted (4) 33-52 -Severely restricted (5) 53-90 -Extremely restricted.

The limitations of this OM are its length and constant comparison of the interviewee to his/her peers, which may be confusing to the respondent. It seems the same follow up question is used in cases where the person answered "irrelevant or I do not want to" which may be that respondents are reluctant to answer any questions that are not relevant to their life.The Participation Scale may also have an element of redundancy to it. To date the PS"s validity and reliability has not been tested on a population of patients with stroke

2.6.8 Maleka Stroke Community Reintegration Measure (MSCRIM)

A product from Morake Elias Douglas Maleka*et al* (2010), for assessing community reintegration in patient with stroke. It comes in two versions which are the rural and the urban versions with six domains each. Rural version has 36 items while urban version has 40 items (Maleka *et al*, 2010).The scoring points are based on either three points (0-2) or four points (0-

3) scale andit is interview administered lasting for 15-20 minutes. Psychometric properties are excellent with (α=0.95), (r = 0.95 p = 0.0001, for rural O.M. and r = 0.88, p = 0.0001 for urban O.M) when compared with SIPSO (Maleka, 2010). These versions are available in four South Africa languages namely: Sesotho, IsiZulu, TshiVenda and XiTsonga (Maleka *et al*, 2010).

2.6.9Stroke Specific Quality of Life (SS-QOL)

The SS-QOL scale is a patient-centred outcome measure intended to provide a quality of life assessment specific to survivors of stroke (William *et al*, 1999). It is a mail administered, self report scale containing 49 items within 12 domains namely: Energy, Family, Language, Mobility, Mood, Change in personality, Self care, Social roles, Thinking, Upper extremity function, Vision, Productivity/work.

Each item is rated on a 5-point Likert scale on one of three keyed response sets (Williams *et al*, 1999). Higher scores indicate better function. All domains of the SS-QOL have demonstrated excellent internal reliability (Cronbach alpha value = 0.73) (William *et al*, 1999; Salter *et al*, 2008). Muus *et al* (2007), validated the Danish version of the SS-QOL and reported it to be a reliable (test-retest r = 0.65 - 0.99) and valid (Cronbach alpha = 0.81 - 0.94) instrument for measuring self-report QOL among people with mild to moderate stroke.

The limitation with mail administered questionnaires for patients in this study is that most patients do not have street addresses, nor post boxes to receive letters. Secondly, the limitation with self reports is the inability of most patients to read and write; therefore, most patients would require assistance with completing the questionnaire (Grebe, 2009). The other limitation is that it is a scale measured on five point likert scale and it has not been tested among severe stroke populations (Salter *et al*, 2005b) and lastly, it was found to be a useful scale for assessing quality of life and not community reintegration among stroke survivors.

2.6.10Stroke Impact Scale (SIS)

The primary goal for the development of the SIS was to create a self-report instrument that would measure the full spectrum of stroke related outcomes, from the impairments to the handicap level, based on the ICIDH model and to be interviewer administered. The measure

was also intended to specifically incorporate the quality of life goals of the recovering person with stroke and his/her caregiver (Duncan *et al*, 2001).

The SIS covers 8 domains of stroke recovery that represent distint aspects of stroke Health-related QoL which were: strength, memory/thinking, emotion, communication, ADL/IADL, mobility, hand function and social participation It uses a 5 point Likert response scale, rated on the difficulty of the item rather than on the degree of dependence. The final score is calculated as 100 x [(actual score-lowest possible score)]/ possible range (Duncan *et al*, 2001). The SIS was found to be reliable (Cronbach alpha ranged from 0.83 to 0.90), valid (p values ranged from 0.02 to 0.0001) and sensitive to chane in people with moderate strokes (Duncan *et a*l, 1999).

The major limitation of the SIS for use as a measure of community-reintegration is that it contains domains and items across the ICF continuum i.e. from impairment to participation and thus there is only one domain that assesses participation.

2.6.11 EurolQoL Quality of life Scale: The EuroQoL comprises of two sections, the EQ -5D index and the EQ-5D VAS. The EuroQoL is commonly known as the EQ-5D is a 5-item standardised generic measure of HRQL with domains of mobility, usual activities, pain/discomfort, anxiety/depression and self-care using 3-point response scale (Salter *et al*, 2005b). The major limitation with the use of this OM is that part B of the scale uses a VAS, a major problem and abstract concept to explain to people who have a low educational level. The other limitation is that it is not suitable for use in serial assessment of individual patients; it is more appropriately used in the study and comparison of groups (Dorman *et al*, 1998, Essink-Bot *et al*, 1997).

2.6.12Medical Outcomes Study Short Form 36 (SF-36): This is a generic health survey, created as part of the Medical Outcomes Study to assess health statzus in the general population (Ware and Sherbourne, 1992). It consists of eight subscales, two of which assess participation namely: role limitation-physical and social functioning. The limitations are similar to the Euro-Qol, in that it is not suitable to use for serial comparisons of individuals but rather in larger group comparisons only (Dorman *et al*, 1998). It is also self or telephone-

administered by a trained interviewer. The last limitation is that you need to buy a licence to use it.

2.6.13Nottingham Health Profile (NHP): This was designed to be a brief, subjective measure of perceived health encompassing the social and personal effects of illness (Hunt *et al*, 1985). It is somewhat limited in its measure of participation per se, as it only contains one domain of five items assessing social functioning (Salter *et al*, 2005c).

2.6.14Stroke-Adapted Sickness Impact Scale Profile (SA-SIP-30): This was designed for comprehensive, behaviourally-based measure of perceived health status originally intended for use as a generic health status survey (Van Straten, 1997). It only has one subscale that assesses participation called "social interaction". Its major limitation is that it contains items that assess body structure/function and some activities but very few items that assess community reintegration. The second limitation is the lengthy time it takes to complete this scale, although a shorter version has been developed for use in stroke outcomes research.

Table 2.1: Summary of Standardised Community Re-Integration Scales

SCALE	DEVELOPERS	TARGET POPULATIONS	CONTENTS	METHODB OF ADMINISTRATION	PSYCHOMETRIC PROPERTIES	COMMENTS/ LIMITATIONS
The Reintegration into normal living.	Wood-Dauphinee *et al* (1998), from Canada	People with incapacitating disease or injury	It is 11 items scale	It is a Self-administered, interviewer or proxy administered	It is Valid with good Inter- rater reliability (z=0.62; at p = 0.00) and test retest reliability (Icc= 0.90)	Scoring System with VAS is abstract to most illiterate patients.
The Craig Assessment and Reporting Technique for Handicap.	Whiteneck (1992), from United Kingdom (UK)	Useful in spinal cord and brain injury.	It has 5 domains with 32 items	It is used as Self, interviewe, proxy, telephone or mailed administered	It is not yet investigated with Stroke population	Generally long
London Handicap Scale.	Harwood *et al* (1994), from United Kingdom	Adults with physically or neurologically impairments	It has 6 domains and 6 items	It is Interview administered	It has a Correlation of (r=0.90).	Uses six point Likert scale, difficult to translate
The Subjective Index of physical and social outcome.	Duncan *et al* (2001), from USA.	Patients with stroke	It has 3 domains with 10 items	It is Interview administered	Internal consistency α= 0.91, ICC. = 0.96, Construct. Validity r= 0.09.	Quick and inexpensive, Uses 5 point Likert scale
Community integration Measures.	McColl (2001), from Australia	People with brain injury	It has four domains with 10 items	Self or interview administered, completed within 5 minutes.	It is valid and reliable (r = *0.88* ICC= 0.70)	5 responses options-difficult to understand. Needs a certain level of literacy.
Participation Sale.	Va Brackel *et al* (2006), from Nepal , India and Brazil	Persons with Leprosy or disability	It has two parts with 18 items	Interview administered	It is not yet investigated with Stroke population	Need to be constantly comparing the patient to a peer and is confusing.

The Maleka Stroke Community Reintegration Measure (Urban Version)	Maleka *et al* (2010), from Johannesburg , South Africa.	Patients with stroke	It has 6 domains w ith 40 items	Interview administered	It has correlation r = 0.88 at p = 0.00 and internal consistency α= 0.95	Simple to use. No training is needed
Stroke Specific Quality of Life.	William *et al* (1999), from United States of America (USA)	Among people with mild to moderate stroke	49 items on 12 domains	Need training to use, interviewer administered, self report.	Reliable (test-retest r = 0.65 - 0.99) and Valid (Cronbach alpha = 0.81 - 0.94)	5 point Likert scale. .Need training to use
Stroke Impact Scale- Version 3.0	Duncan *et al*(2001), from United States of America (USA)	Patients with stroke	59 items measured on 8 domains ot stroke recovery	Self report and Interviewer administered	Reliable (Cronbach alpha ranged from 0.83 to 0.90), Valid (p-values ranged from 0.02 to 0.0001)	Too long, uses five point Likert scale. Calculation of the final score complicate
The EurolQol Quality of life Scale:	Salter *et al* (2005), from Europe.	Patients with stroke. O.A, Parkinson's disease, Rheumatic disorders, LBP, Intermittent claudication.	5 items and 5 domains. Comprises two sections, the EQ-5D index and EQ-5 VAS	Self report scale	Not yet validated on stroke population but used as a valid measure of self-perceived health in several population groups	Domains are weighted and estimation of index value requires computarised programme, not readily accessible.
The Medical Outcomes Study Short Form 36 (SF-36):	Ware and Sherboume (1992).	Used to assess health status in the general population	It has 8 subscales	Self report, proxy, interviewer or telephone, mail administered	Low rates of agreement between proxy and Patient. Test re-test reliability was negatively affected by the use of proxy respondents.	It does not lend itself to the generation of an overall summary score (using summed Likert scales)
The Nottingham Health Profile	Hunt *et al* (1989). First used in Europe	Used as subjective measure of perceived health effects of illness	Part 1 contains 38 items while part contains 7 items	Elf report or interviewer administered	High correlation were obtained from the responses (r=0.98; p≤0.001).	It is somewhat limited measure and does not assess many areas of concern. Use of the weights has been criticised

						as inappropriate
Stroke-Adapted Sickness Impac Profile (SA-SIP-30)	Straten *et al* (997)	A measure of physical disability in stroke	Eight domains and 30 items	It was used with proxy	The agreement between the scores obtained was lower among more severely ill stroke patients.	It may represent a measure of physical disability than health status
Community Integration Questionnaire (CIQ)	Willer *et al* (1994), from Canada	Persons with acquired brain injury	15 items scale, covers home, social, productivity	Self, interviewer, proxy administered	Not yet validated among stroke population.	Q13, 14 and 15 are difficult to interpret.

2.7 Cross-Cultural Adaptation and Translation of Health Measuring Instrument

This process is important especially when the development of that tool was from a different language, culture and context of target population being assessed (Grebe, 2009). The emphasis was on the problems of translating instrument in which the process was too shallow to the extent that there was no rigorous back-translation and pretesting. Outcome of such translation may be given another meaning in the target population being assessed (Berkanovic, 1980). However, adequate translation process, does not guarantee that different meaning would not be given to translation in a new language, cultural difference also is another factor that can affect an instrument's properties negatively (Deyo, 1984). Therefore, it is necessary not only that the items should pass through rigorous and normal translation linguistically within that construct, but must also be adequately adapted culturally to retain the contents and constructs of the items on which the items was meant for when it was developed (Herdman *et al*; 1997, Wagner *et al*, 1998).

For an instrument to be generally acceptable in a given target population or culture, a complete validation process is necessary to be carried out. (Nord, 1991).The significant problem when a research is being conducted in a new environment is the issues of language barriers. Thus, this must be addressed during the process of translating standardised scales in order to prevent the issues of wrong judgement on the part of those patient, especially when the scales used terms and wordings that are not familiar or translatable to the target population being assessed (Akinpelu *et al*., 2007). The interest of multinational and multicultural had grown rapidly in research projects for clinical evaluation and evidence based practice, thus giving rise to the need for the adaptation and translation of many health status instruments in order to be used in another settings other than the source language (Wiesinger *et al*, 1999).

On the basis of the above explanation, it was concluded that the adaptations and translations should be considered for several different scenarios. Guillemin *et al* (1993), suggest five different scenarios which are centred on languages and cultures (source and target populations). The scenarios are that (1) if the instrument is to be used in the same language and culture of the source country, no adaptation is necessary. (2) If it is to be used in established immigrants in source country, same language but different culture, only adaptation is necessary. (3) If it is to be used in other country, same language but different culture, only adaptation is necessary. (4) If it is to be used in non-English speaking immigrants, same country with change in culture, both translation and adaptation are necessary. (5) To be suitable for its usage in another country but different language and culture, both translation and adaptation are necessary.

The duty of guidelines proposal on any instrument is vested in the hands of a body called International Test Commission (ITC). This body had been focusing on the possible ways of producing an acceptable guidelines on adaptation/translation of neurological scales since 20th century, but no one yet (ITC, 2010). The research consensus in conjunction with this commission suggested that bilingual translators that are independent should be involved in the adaptation processes (ITC, 2010). This is done to prevent interpretation and understanding problems with possible linguistic, psychological and cultural lop-sidedness in item contents and equivalence (Beaton *et al*, 2000).

Subsequently, several characteristics and qualifications were postulated by different authors for the inclusion of any translators to be considered fit for adaptation and translation processes which may eventually yielding quality outcomes. For example, Hambleton (2005), argues that some of the qualities of the translators for the process is to be skilful in the languages of interest and be conversant with the cultures peculiar to that target population. Another authors emphasised the important of translators to be as fluent as possible in the language where the instrument was developed and to be native also in the new area where the instrument is to be used (Beaton *et al*, 2000). Opinions from the studies of Hambleton, (2005) and ITC (2010) saidthat translators are expected to know the intention of what the instrument is measuring and be familiar with the skills of writing related to subjects being assessed. The conclusion was that one of the translator should be familiar with the purpose of the translation goals while the other

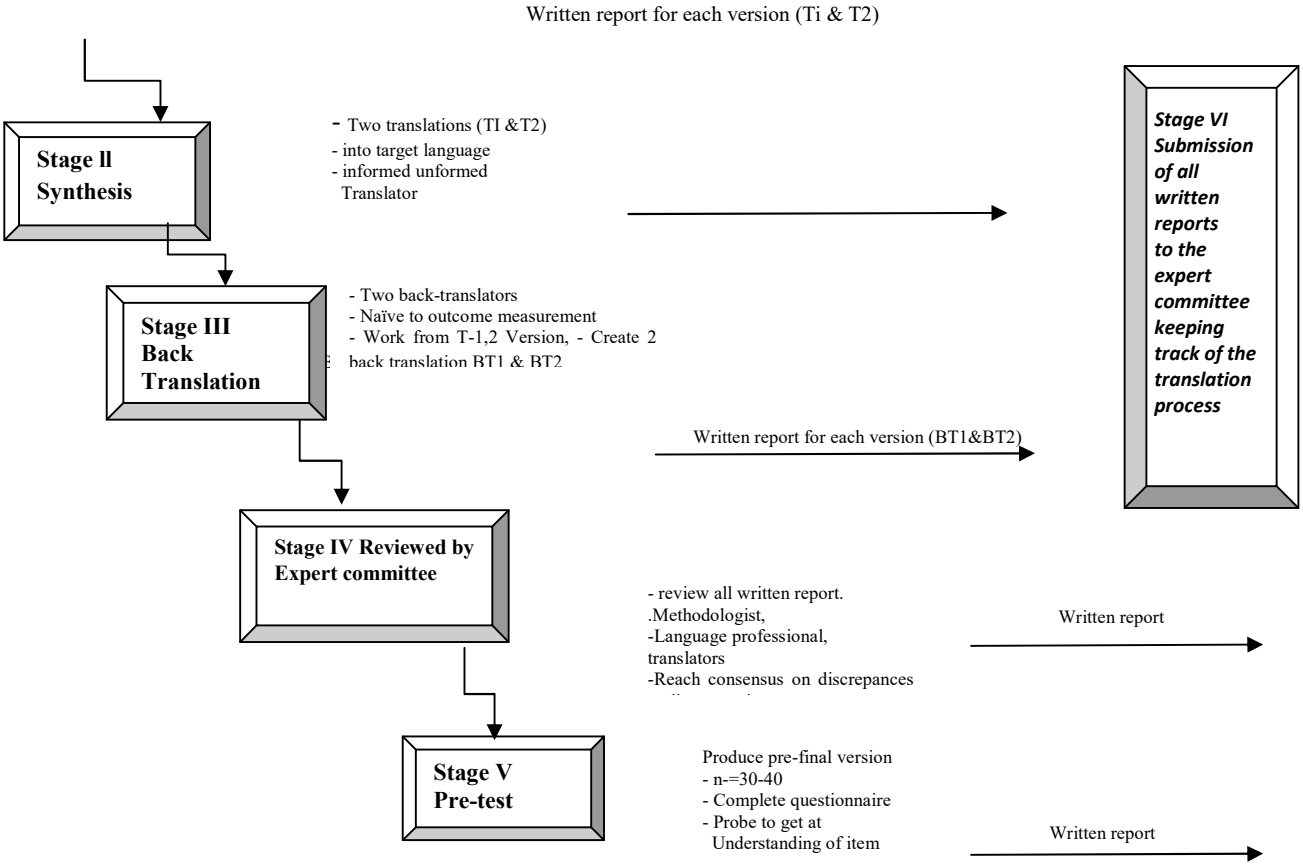
translator should not be aware of the intention of the construct being measured. This is done because the first translator seems to show proper meaning of the instrument, while the other translator tends to produce little deviation concerning the meaning of items because he or she is less being influenced by the academic pursuit of the translation.

There were several existing guidelines from different authors for the above process. According to the guidelines reviewed by Borsa *et al* (2012), six stages of the adaptation and translation of the scale should be observed which include: Forward translation of the source language, analysis, reviewed by the committees, back translation, assessment of the instrument and piloting on the study. Antunes *et al* (2012,) proposed seven stages, as follow: conceptual explanation, forward translation of the source language, backward translation (Blind), expert assessment, cognitive debriefing, vetting of the write-up, psychometric testing. On the other hand, Gjersing *et al* (2010), argued on four stages which are: forward and back-translations, review by expert committee, pre-test of instrument, assessment of operational equivalence. Conversely, Clinical Trials Research Unit(CTRU) (2013), debated on six proposals, which are: translation forwardly-from source English to target language, inspection of translation, back-translation into English, inspection of translation, pre-final testing, final testing on the field. WHO (2013), proved on six consecutive stages of translation, such as: the forward translation, review by the committee, the back-translation, field testing, cognitive debriefing, reports writing. Beaton *et al*. (2000), opined on six stages of translation, which are: the initial translation (translator 1 and 2), the assessment of the translations, the back translation, review by the panel, pre-testing, evaluation. Recommendation to proceed on validation process would be given by committee keeping tract of the process.

2.8 Stages in Cross-cultural Adaptation Programme

Figure 2.1 outlines the cross-cultural adaptation process of the guidelines of Beaton *et al* (2000) being recommended. It is the method currently used by the American Association of Orthopaedic Surgeons (AAOS) Outcomes Committee as they coordinate the translation of the different components of their outcomes battery. The written documentation of each step helps

to record that it was performed butcan also serve as a memory aid at later stages (McConnell, *et al*, 1999).



Adapted from Beatons et al, 2000

Figure 2.1:Graphical Representation of Cross-Cultural Adaptation Stages

2.8.1 Stage I: Initial Translation

The consensus translators for this process are two forward translators. This is called bilingual translators and their language of interest must be their mother tongue who would produce the two independent translations from source to target languages. They must possess different profiles and they would serve as checks and balances to each other whereby the results from each of them could be reassessed on consensus and all the ambiguous wording and discrepancies would be addressed and resolved as well (Hendricson *et al*, 1989).

2.8.1.1 The Translator 1. The concept of what the scale is meant to assess should be known to this translator. The outcome of translation is assumed to provide a reliable similarity of the source instrument with its equivalence from a more clinical and measurement perspectives.

2.8.1.2 The Translator 2. The intention of the translation must not be known to the translator and must not be a medically oriented person. This is called a naïve translators because detection of different meaning of the source language would be reflected in the outcome of his\ her translation than the first translator. Furthermore, the influence for academic goal of the research would be reduced.

2.8.2 Stage II: The Translations are synthesised

The opinions and ideas of the above two translators were merged together in their meeting to produce a single translation called consensus translations i.e. the results from the source questionnaire, the first and the second translators (T1 and T2 respectfully) would be explored to produce one common translation T-1,2. Comments would be raised, addressed, and were easily resolved between them. Consensus would emerge following this process instead of one person with a shallow ideas compromising his/her outcomes.

2.8.3 Stage III: Back Translations

Two back-translators (BT1 and BT2) were suitable for this stage and the criteria were based on the fact that the source language of the translators are their mother tongue. They would now be subjected to interpreting the T-1,2 through back-translation into original language without being aware of the (above stages T-1,2) previous versions (blinding). To prevent information

bias, the concepts the instrument being assessed should not be known to the translators and they must not have any medical background (Guillemin *et al*, 1993). The ambiguous wording and inconsistencies or conceptual errors in the process is highlighted and resolved again. This is called validity checking and it would enable the outcome to be reflecting the equivalence and similar item content as the source version. (Leplege and Verdier, 1995).

2.8.4 Stage IV: The Expert Committee

This are the body keeping the track of the translation process and are very important to the achievement of accurate and equivalence translation. Literature recommends suitable composition of the expert committee that are considered to be optimum for this process which are: the researchers/lecturers, methodologists/statisticians, clinicians, and experts in both languages and those who specialises in interpretations called translators (forward and back). They would availed themselves to evaluate and assess the processes of translations to reach a common opinion and produce what is called the final adapted vesion (Guillemin *et al*, 1993). With these materials at their disposal (the original scale and all translations (T1, T2, T-1,2, BT1, BT2), the following four critical steps should be ensued by the committee.

2.8.4.1 The Semantic Equivalence. These questions would be addressed by the committee. Do the words in the scale easily understandable by the participants? Do the wordings of the questionnaire mean what is intended to pass across to the participants? Are there many interpretation or different opinion to a given item? Are they easily translatable or full of grammatical difficulties?

2.8.4.2 The Idiomatic Equivalence: Furthermore,are there any words, phrases, colloquialisms or idioms to be examined and proper interpretation given? The committee would generate an appropriate equivalent expression that would fit into the difficult words or phrases in translation that was understandable in the target population. For instance the phrase “singing in the choir’’ or preaching/evangelizing to people’’ from MSCRIM scale has generated problems of translation for the target population, and a phrase with similar meaning have been provided by this committee.

2.8.4.3 The Experiential Equivalence. Health status questionnaire are meant to probe into the real picture of functional performance or activity level of a patient given that the patient is familiar with that activity. A given activity may not be experienced in a different environment or culture but translatable, such item would have to be changed and another one used in replacement for a familiar one, i.e. a similar item that conforms to the experience that is familiar in that target culture. For instance, can you carry that heavy object(s) with a plate? When a plate was not the material used to carry heavy object (s) in the target country.

2.8.4.4 The Conceptual Equivalence. Different conceptual meaning can be given to different sentences between cultures (for instance the meaning of this type of community roles "are you able to help in digging a grave yard" vary from other cultures with different concepts of what defines "community roles"—road repair, environmental sanitation etc.). The committee should evaluate the source of any expression/sentence and back- translated wordings for its equivalences in a target population. Consensus is necessary and should be achieved on the items of the questionnaire among this committee to produce the pre-final version. The translators should be aware that the equivalent and real meaning of the contents in this questionnaire being translated should be understood by the age group of JSS-II level class i.e. 12 years old.

2.8.5 Stage V: Testing the Pre-final Version

This is a stage called the pre-test. The suitable number of stroke survivors recommended for field testing in this stage is between 30 and 40 from the target population (Beaton *et al*,2000). Care must be taken during this process to make sure that all items of each domain retained the contents and equivalents as the original version. All interview and responses of the selected survivors would be explored to check for the distribution of responses and high proportion of missing items. The appraisal and adoption of the adaptation process would now be done by the committee keeping the track of the process for final version.

2.8.6 Stage VI: Submission of Documentations

Here, collation of all the reports, forms and processes of the adaptation and translation processes are done for the submission to the committee keeping the track of the processes and this is followed by appraisal/recommendation by this committee. Thus, this stage is known as process audit in which all the processes, steps and necessary documentations were checked and confirmed to be in sequence.However, this body are not permitted to alter any content of this findings. By following the above stages, it is presumed that a tangible outcome of translations would be accomplished.

CHAPTER THREE

MATERIALS AND METHODS

3.1 Participants

Participants who agreed to be involved in this study through their informed consent were the stroke survivors who were receiving treatments in the outpatient unit of physiotherapy departments, in the following tertiary health institutions inLagos, Nigeria. They include:

- Federal Medical Centre, Ebute-Meta,
- Lagos State University Teaching Hospital, Ikeja,
- Lagos University Teaching Hospital, Idi Araba,
- National Orthopaedics Hospital, Gbobi

3.2. Inclusion Criteria

The requirements needed by stroke survivors for inclusion criteria were those who:

a) Understand Yoruba and English Languages
b) Were ≥ 18 years
c) Had been living in the community for at least three months prior to stroke onset and three months post stroke.

3.3. Exclusion criteria

Stroke survivors in the following categories were excluded from this study. Those who:

(a) Were aphasic and had no local caregiver
(b) Were medically unstable (self-report).
(c) Had major co-morbidity or major medical problems not related to stroke, like chronic renal or cardiac failure (self report)

3.4 Methods

3.4.1 Sample size

This is estimated using the formula

$n= [10p (1-p)] / (w)^2$

Where n = sample size

10 = the proportion of stroke survivors in Nigeria

P = expected interclass correlation coefficient = 0.9

W = maximum width of the 95% confident interval = 0.15

Hence the sample size n is calculated as follows:

$n = [10 X 0.9 (1- 0.9] / (0.15)^2$

$= [10 X 0.9 (0.1) / 0.0225=40$

n = 40, the sample size for psychometric properties (Thomas *et al*,2001).

However, 60 participants were aimed at in order to make room for participants that might not turn up for second occasions one week after the administration of the MSCRIM.

3.4.2. Sampling Technique

Participants were recruited as they became available (i.e. consecutive sampling technique)

3.4.3 Research Design

The present study was validation study

3.5. Materials

3.6 Instrument

3.5.1.1 Maleka Stroke Community Re-Integration Measure (MSCRIM): Developed from South Africa by Maleka *et al*,(2010) for stroke survivors with activity limitation and participation restriction. It has six domains with forty items. The scoring points are based on either three points (0-2) or four points (0-3) scale. It is a self-report, interviewer administered and easy to administer between 15-20 minutes. These domains which have been shown to be valid (r=0.88), with a good reliability (α=0.94) and item-to-total correlation>0.6 when compared with Frenchay Activities Index (Kersten *et al*, 2004). This could be found in Appendix II. The maximum scores for the urban versions of MSCRIM is 95. The score of each domain is the summation of the scores of the items available divided by the addition of possible maximum scores of all the obtainable items in the domain x 100%. The total scores for the instrument is addition of all the scores of the available items upon the addition of total

possible score of all the obtainable items x 100%. The community reintegration level of stroke survivors could be estimated through the above calculation by chosen the total scores being calculated for the instrument. The higher the numbers of total scores the more the level of community re-integration and vice versa.

3.7. Procedures for Data Collection

The procedures were in two phases; (1) firstly, was adaptation of MSCRIM cross-culturally into Yoruba Languages and (2) secondly, was the validation of Yoruba cross-culturally translated MSCRIM. The procedure employed in this study followed standard guidelines (Beaton *et al*, 2000).

3.7.1 Phase 1:Cross-Cultural Adaptation and Translation Processes of MSCRIM into Yoruba Language.

Permission to cross-culturally adapt and validate the MSCRIM (urban version) into Yoruba culture and Languages was sought and obtained from the developer, Dr Douglas Maleka (see Appendix III and IV).

The original English MSCRIM (Appendix V) was adapted into Yoruba culture and environment (17 items) without translation by a panel of experts at a meeting (Appendix VI). The panel of experts comprised four physiotherapy lecturers/researchers who were familiar with health measuring scales and questionnaires, two physiotherapy clinicians who had over 10 years clinical experienced in the management of stroke. The written of reports of all the stages of translations were observed and documented by the researcher to show that the processes were performed for memory aid in other to be used subsequently.

Copies of the Yoruba culture and environment adapted MSCRIM (in English Language) were then given to two Yoruba language experts (whose first language was Yoruba) to translate into Yoruba language. One of the Yoruba language experts (T1) was informed about the underlying construct the scale measures (Appendix VIII), while the other experts (T2) was provided no information (Appendix IX). Both translators were from Faculty of Arts, University of Ibadan. The two translators later met and produced a consensus translation (Appendix X) from the two forward translations (T-1, 2).

Copies of the consensus translation were given to two individuals who had proficiency in both languages and whose Yoruba is their mother tongue, to translate back to English i.e.,back translations (BT1) and (BT2) . The two translators who were not aware or informed of the construct the scale measures. A second panel of experts, which included members of the first expert panel with two forward and back translators met and reviewed the original English MSCRIM, the adapted English MSCRIM, the two forward, the consensus, and the back translations. The panel of experts then considered all the versions of the scale and reached a consensus where discrepancies in the translation were found and were resolved. At the end of the meeting, the expert panel consolidated the versions and came up with a penultimate pre-final version of the scale (Appendix XI). The pre-final Yoruba cross-culturally translated MSCRIM was then pre-tested through interview to 30 adult stroke survivors who were literate in Yoruba and attending the physiotherapy out-patient clinic in state hospitals at Marina, Gbagada and Isolo in Lagos. Each participantwas also taken through cognitive debriefing interview to probe their level of comprehension of the messages on the items.All the participants indicated clarity of language and ease of understanding of all the items in the domains. The participants also reported that all the activities in the adapted MSCRIM were in order with Yoruba culture, and therefore, were relevant for community reintegration among the Yorubas.

Findings from pretest and cognitive debriefing interviewed were reviewed by the expert panel at their third meeting and another 22 items were modified with the addition of an extra option of ‘’not available’’ to the response scale in domain 2 and 5. This was done in order to differentiate between the stroke survivors who have the ability to perform those activities from those who do not have the facilities for the activities on those domains.These lead to the production of the final Yoruba cross-culturally translated MSCRIM (Appendix XII).

3.7.2 Cross-Cultural Adaptation of MSCRIM from Original English into Yoruba Culture and Environment

During the process of cultural adaptation by the expert panel, some modifications were made in order to ensure semantic, idiomatic, experimental and conceptual equivalence of terms and examples used in Yoruba environment(Appendix XII). This is in line with recommendation by

Beaton *et al* (2000) that a newly adapted scale should contain terms that are experimentally equivalent in the new culture as the original version is in the culture for which it was developed.

The terms “bucket and “bathe” were added to items 2 and 3 in domain 1 of the adapted version (MSCRIM) in order to bring more meaning to the sentences because bucket is a common term used in Yoruba culture for container one can pour water into. Likewise, “drinking” and “tumbler” were added to items 5 and 6 of domain 1. Tumbler is another word culturally used to mean a small drinking glass in Yoruba culture. The term“compound” and “backyard” were added to “yard” that was used only in item 9 of domain 1 of the original version was not specific enough to denote the environment where stroke survivors can move around. The common term used in South-Western Nigeria as a means of getting water from the river is “fetch” and that was why the term “fetch” was added to other option “collect” for more understanding in Yoruba culture (item 11, domain 1). In this same item, the terms “well” and “communal tap” were added for easier understanding of sources of water in Yoruba culture. The example given in item 12 of domain 1 “shopping bags (2-3)” to denote heavy objects was replaced with examples that Yoruba people are more conversant with such as “one bag of sachet (pure) water”, 20 litres of jerry can of oil” or “a crate of bottled soft drink”. The reason for this is that many people don’t shop in supermarkets and many of those who do cannot afford to buy items that would warrant carrying 2-3 shopping bags**.** The word “Bible” was removed completely without replacement in item 15 of domain 1 to avoid religion bias because Nigeria is a multi-religious country while the verb “perform’’ was also added for easy understanding. The terms “movie’’, “cinema”, “family members” and “viewing centre” were added to item 16 of domain 1 for more clarity of the statement on how far the stroke survivors extended their level of reintegration in different location in their environment with their families and not only with their friends alone.

The expert panel suggested that an additional response option, “Not Available” should be added to the response scale and so, the number of columns were increased in domain 2 for item 1 and domain 5 for item 1 to accommodate and to make provision for respondents who still have the ability to work in the garden and caring for livestock but the facilities for these were

not available. This would prevent some respondents who might leave some items unanswered, or might be tempted to give wrong impressions of having difficulty or no difficulty in the performance of these activities they were not necessarily performing. To be more specific on the question of item 2 domain 2, the term “parties” was used in the adapted version of MSCRIM to replace “social events” and “birthday/naming/lunching/council ceremonies” were used to replace “funeral/parties while “wedding ceremonies” was retained because wedding is a common event in all cultures. The term “social club meeting” was retained in item 3 of domain 2 in adapted version of Yoruba MSCRIM, but “burial society” was completely removed because it was not available or practised in Yoruba culture. The term “chief/councillor” was provided with other options in adapted version as “family/landlord/ resident association/trade/cooperative society meetings” because the former rarely hold meetings with their community members in Yoruba culture.

The activities such as “singing in the choir” and “preaching/evangelizing to people” were considered to be specific to Christian religion rather than community roles as portrayed in item 4 of domain 2 and were therefore replaced with a conceptually equivalent of “singing and dancing with age groups/grades meetings” and likewise, the term “such as’’ was used in place of “e.g.’’. Activities such as “helping at the local school/digging of a grave/burying your congregates” were completely removed and were replaced with “environmental sanitation/road repair/traffic control” as examples of community roles that were familiar with Yoruba culture and which could be easily understood and performed by Yoruba stroke survivors because the former activities were not practiced in Yoruba culture. The term “community leadership” was retained in the adapted version of Yoruba MSCRIM because it is a common term across the cultures. The term “religious, spiritual and other religious related activities” such as “bible studies/home cell meetings/prayer meetings” in item 5 of domain 2 that were specific to Christian’s religions were modified with a single term “religious activities,” in order to avoid bias toward Christian’s religion and to accommodate other religions because Yoruba belongs to many religions. The terms “trekking /brisk walking/jogging/gardening” were added as examples for “any sport” in item 6 of domain 2 of the adapted version. Some activities that were more or less gender-specific task and were not available or practiced in Yoruba culture such as “mudding the floors with cow dung” in item 1 of domain 3 of the MSCRIM, was

replaced with “sweep, mop or scrub the floor” as an act of hygienic condition which was considered as female-specific tasks in Yoruba culture. In item 2 of domain 5, “mudding with cow dung” was again replaced with “house cleaning, mopping and scrubbing” and cook was removed. In item 2 of domain 3, “carry out minor repair works at home e.g. changing bulbs/switching on generators “was added to the adapted version of Yoruba MSCRIM in order to test for more functional activities in the affected hand of the stroke survivors and for more understanding of the question.

There was also additional sentence in item 3 of domain 3 for the adapted version of MSCRIM where question like “mop up the area or are you able to wash or clean your car?” was added for clearer information on the question in Yoruba culture in order to test for fine finger movement/function of the stroke survivors. The term “washing ‘’ was removed from “washing line’’ and “former’’ was added to item 5 of domain 3 as well. The term “members” was also added to “family” and “helping’’ replaces “assisting’’ in item 4 of domain 4 of the adapted version of Yoruba MSCRIM, for easy understanding of the question in Yoruba culture. In item 1 and 2 of domain 5, some phrases were replaced completely with the following “such as’’ and “house cleaning/mopping/scrubbing’’. Lastly, more examples were provided to item 2 of domain 6 of the adapted version of Yoruba MSCRIM where the term “such as’’ replaces “e.g.’’ and “vocational training/conference attendance” were added to shed more light on the meaning of the question in Yoruba culture. Appendix VII summarizes adaptation processes.

3.7.3 Phase 2: Validation Processes of Final Yoruba MSCRIM

Approval to the protocol of the procedures was given by Hospital Health Ethics Research committee of the tertiary health institutions where data was collected prior to the commencement of data collection (appendix XIII, XIV and XV). Permission to involve patients attending physiotherapy clinic in each of the involving hospitals was obtained from the relevant authority.

The procedure of this work was explained to each of the stroke survivors who participated, and their informed consent obtained before their participation in this research (appendix I). Socio-demographic information was recorded for every participant on the data sheet (appendix II). Both the adapted English MSCRIM and final Yoruba MSCRIM were then administered to

60participants through interview by the researcher. The order of administration was randomised using simple random sampling method. Participants who picked letter “E” had adapted English version of MSCRIM administered to them first, while those who picked letter “Y” had final Yoruba MSCRIM administered to them on the same day. The final Yoruba MSCRIM was re-administered again on the second occasions throughh interview to participants after one week of the first administration.

3.8 Data Analysis

1. The demographic and clinical data as well as the scores of the MSCRIM were summarized using frequency counts and percentages, mean and standard deviation.

2. Wilcoxon’s Ranked Sign Test was used to determnine if there would be significant difference in participants’ total scores between adapted English and final Yoruba MSCRIM.

3. Wilcoxon’s Ranked Sign Test was used to determnine if there would be significant difference in each of the participants’ domain scores between adapted English and final Yoruba MSCRIM (concurrent validity).

4. Spearman’s Rank order correlation coefficient was used to determine if there would be significant correlation in participants’ total scores between final Yoruba MSCRIM measured on two occasions (test re-test reliability).

5. Cronbach’s Alpha Statistics was used to determine if there would be significant correlation between participants’ total scores and each domain scores on final Yoruba MSCRIM (internal consistency).

Alpha level was set at P=0.05

CHAPTER FOUR

RESULTS

4.1 Results

4.1.1 Outcome from Cross-Cultural Adaptation Process (phase 1).

During the initial process of adapting the original Maleka Stroke Community Re-Integration Measure (MSCRIM) to Yoruba culture and environment, all the 6 domains and 40 items were retained, but the expert panel modified 17 items that were not familiar to Yoruba culture out of 40 items of the MSCRIM and added an additional response option of "Not Available" to the response scale in domains 2 and 5. The reason for the additional response option was to accommodate participants who still have the ability to work in the garden and caring for livestock but the facilities to carry it out were not available due to financial constraint. This would also prevent some respondents who might leave some items unanswered, or might be tempted to give wrong impressions of having difficulty or no difficulty in the performance of these activities they were not necessarily performing. Another 22 of the unfamiliar items in Yoruba culture were later modified in addition to the previously modified 17 items, after the pre-test and cognitive debriefing interviewed, for more understanding of the questionnaire by the respondents. Appendix VII summarizes the modifications.

4.1.2 Physical Characteristics of the Participants (phase I)

A total number of 30 stroke survivors (17 males and 13 females) and their mean age 60.46 ± 13.12 years participated in the pretesting and cognitive debriefing interview. Seven of the participants were self-employed, eleven were civil servants and ten were retried due to age. Seventeen of the participants attained post-graduate status such as N.C.E, Teacher Training and University education while only one participant had no formal education. Twelve of the participants were ambulating independently while fifteen were on different walking aids and three were on wheel-chairs. All the participants reported clarity and easily understanding of the items presented on the scale during the cognitive debriefing interview. The participants were receiving physiotherapy treatments from the three selected secondary health institutions in Lagos state, namely: Gbagada, Isolo and Marina. The consensus at the meeting of expert

committee was that the participants' responses justified the additional response option of "not available". No other adjustment was made by the expert panel.

4.1.3Findings from Validation Process of final Yoruba MSCRIM (phase II).

4.1.3.1 Participants' Socio-demographic and Clinical Variables.

Sixty stroke survivors (30 males and 30 females) who were aged 59.98±10.32 years participated in the psychometric testing of the Yoruba adapted MSCRIM (table 4.1). Twenty-two participants had University education, thirteen had non University education such as NCE, Teacher Training, thirteen secondary education, nine primary education and three no formal education (table 4.1). Unemployment rose from 15.0% pre-stroke to 30.0% post-stroke (Table 4.1 and 4.2) and the majority of participants who retained their employment post-stroke were civil servants (table 4.2).

4.1.3.2 Comparison of Participants' Total Scores and Domain Scores on English and Yoruba Adapted MSCRIM

There was no significant difference in the assessments conducted on the participants' domain scores between the adapted English and final Yoruba MSCRIM (table 4.3). The significant difference is ($p<0.05$). Therefore, there was no significant difference in the observed concurrent validity for ADL/Self-care (0.80), Social Interaction and Relationship (0.16). Home/Family Responsibilities and Appearance (0.65), Social Interaction (0.89), Extended Family Responsibilities) (0.27), Work and Education (0.91). This confirmed the null hypothesis that there would be no significant differences in the participants' domain scores between the adapted English and final Yoruba MSCRIM.

4.1.3.3 Relationship of Participants' Domain scores on Two Occasions

There were significant correlations ($p<0.05$) in participants' domain scores between final Yoruba MSCRIM measured on two occasions (table 4.4). There were high significant correlations for test re-test reliability in Activities of Daily Living (0.82), Social Interactions and Relationship (0.84), Home/Family Responsibilities and Appearance (0.86), Extended FamilyResponsibilities (0.81), Work and Education (0.87) while moderate correlation coefficients was found in Social Interactions (0.57).The null hypothesis that there would be no

significant correlation in participants' domain scores between final Yoruba MSCRIM measured on two occasions. The null hypothesis is rejected and the alternative uphold.

4.1.3.4Reliability Statistics between Participants' Total Scores and Domain Scores on the final Yoruba MSCRIM

There were significant correlations ($p<0.05$) between participants' total scores and domain scores on final Yoruba MSCRIM (table 4.5). Statistical analysis using Chronbach's Alpha statistics produced significant correlations which determining the internal consistency of the final Yoruba MSCRIM. High correlations were found on Activities of Daily Living and Self-care (0.89), Social Interaction and Relationship (0.93), Home/Family Relationship and Appearance (0.91) and Extended Family Relationship (0.88) while moderate correlation were found on Work and Education (0.65) and low correlation in Social Interaction (0.36). The null hypothesis that there would be no significant correlation between the Participants' Total Scores and Domain Scores on the final Yoruba MSCRIM is rejected and the alternative hypothesis considered

Table 4.1: Participants' Socio-Demographic Variables.

Variable	Class	Frequency	Percentage (%)
Age (years)	25-34	1	1.7
	35-44	4	6.7
	45-54	12	20.0
	55-64	28	46.7
	65-74	12	20.0
	75-84	2	3.3
	85-94	1	1.7
Sex	Male	30	50.0
	Female	30	50.0
Marital status	Married	53	88.3
	Single	1	1.7
	Divorced	3	5.0
	Widow	2	3.3
	Widower	1	1.7
Educational Status	None	3	5.0
	Primary	9	15.0
	Secondary	13	21.7
	Post-secondary	13	21.7
	Post graduate	22	36.7
Occupation	Civil servant	16	26.7
	Trading/business	10	16.7
	Manual job	7	11.7
	Self employed	27	45.0

Table 4.2: Participants' Clinical Variables

Variable	Class	Frequency	Percentage (%)
Number of Stroke episode	One	52	86.7
	Two	6	10.0
	Three	1	1.7
	Four	1	1.7
Stroke side affected	Left	34	56.7
	Right	26	43.3
Ambulation method	Independent	43	71.3
	Cane	10	16.7
	Wheel Chair	7	11.7
Pre-stroke ES	Employed	45	75.0
	Unemployed	9	15.0
	Retired	6	10.0
Post-Stroke ES	Employed	28	46.7
	Unemployed	18	30.0
	Retired	14	23.3

KEY: ES = Employment status

Table 4.3: Wilcoxon Signed Ranks Test of Participants' Total Scores and Domain Scores on English and Final Yoruba MSCRIM

Domain	English Mean±SD	Yoruba Mean±SD	Mean Rank	Sum of Rank	Z-score	p-value
ADL/ SC	27.84+14.83	27.49+15.41	24.57	540.50	-0.260	0.795
			21.50	494.50		
SIR	8.30+5.97	8.82+6.03	18.69	243.00	-1.423	0.155
			18.39	423.00		
H/FRA	6.77+6.76	7.15+6.59	15.97	239.50	-0.461	0.645
			16.97	288.50		
SI	6.77+2.22	7.18+5.16	26.26	551.50	-0.135	0.893
			22.17	576.50		
EFR	2.56+1.83	2.35+1.91	8.90	89.00	-1.102	0.270
			7.83	47.00		
WE	3.26+2.58	3.14+2.54	8.00	88.00	0.112	0.911
			11.86	83.00		
Total	55.91+27.46	56.26+27.72	23.52	517.50	0.000	1.000
			22.50	517.50		

KEYS:

S.D = Standard Deviation.

P-value = Probability value

Z-scvore = Wilcoxon Signed Rank Test

Table 4.4: Correlation of Participants' Domain Scores of Final Yoruba MSCRIM on Two Occasions

domain	r (rho)	p-value
ADL/ SC	0.820	0.000
SIR	0.837	0.000
H/FRA	0.858	0.000
SI	0.571	0.000
EFR	0.812	0.000
WE	0.869	0.000
Total	0.891	0.000

KEYS:P-value = 0.00

r (rho) = Spearman Correlation Coafficient

ADL and SC- Activities of Daily Living and Self-care.

SIR- Social Interactions and Relationship.

H/FRA- Home/Family Responsibilities and Appearance.

SI- Social Interactions.

EFR- Extended Family Responsibilities.

WE- Work and Education

Table 4.5. Reliability Statistics between Participants' Total Scores and Domain Scores on Final Yoruba MSCRIM

Domain	α-value	P-value
ADL/ SC	0.893	0.000
SIR	0.928	0.000
H/FRA	0.918	0.000
SI	0.360	0.000
EFR	0.879	0.000
WE	0.648	0.000
All Domains	0.961	0.000

KEYS:

P-value= 0.000

α-value =Chronbach's Alpha

ADL and SC- Activities of Daily Living and Self-care.

SIR- Social Interactions and Relationship.

H/FRA- Home/Family Responsibilities and Appearance.

SI- Social Interactions.

EFR- Extended Family Responsibilities.

WE- Work and Education

4.1.4. Test of Hypothesis

Test 1:

There would be no significant difference in participants' total scores betweenadapted English and final Yoruba MSCRIM.

Test Statistic: Wilcoxon Signed Ranks Test.

α-level < 0.05

P-value = 1.000

Z-score = 0.000

Inference: The total scores of participants on adapted English MSCRIM was not significantly different from those on the final Yoruba MSCRIM

Comment: The null hypothesis is hereby ACCEPTED.

Test 2:

There would be no significant difference in participants' ADL and self-care domain scores between adapted English and final Yoruba MSCRIM.

Test Statistic: Wilcoxon Signed Ranks Test.

α-level < 0.05

P-value = 0.795

Z-score = -0.260

Inference: No significant difference exists in participants' ADL and self-care domain scores between adapted English and final Yoruba MSCRIM

Comment: The null hypothesis is hereby ACCEPTED.

Test 3:

There would be no significant difference in participants' social interaction and relationship domain scores between adapted English and final Yoruba MSCRIM.

Test Statistic: Wilcoxon Signed Ranks Test.

A -level < 0.05

P-value = 0.155

Z-score = -1.423

Inference: TheParticipants' social interactions and relationship domain scores between adapted English and final Yoruba MSCRIM did not differ significantly

Comment: The null hypothesis is hereby ACCEPTED

Test 4:

There would be no significant difference in participants' home/family responsibilities and appearance domain scores between adapted English and final Yoruba MSCRIM.

Test Statistic: Wilcoxon Signed Ranks Test.

α- level < 0.05

P-value =0.645

Z-score = -0.461

Inference: There was no significant difference in participants' home/family responsibilities and appearance domain scores betweenadapted English and final Yoruba MSCRIM

Comment: The null hypothesis is hereby ACCEPTED.

Test 5:

There would be no significant difference in participants' social interaction domain scores between adapted English and final Yoruba MSCRIM

Test Statistic: Wilcoxon Signed Ranks Test.

α- level < 0.05

p-value = 0.893

Z-score = -0.135

Inference: No significant difference in participants' social interaction domain scores between adapted English and final Yoruba MSCRIM

Comment: The null hypothesis is hereby ACCEPTED.

Test 6:

There would be no significant difference in participants' extended family responsibilities domain scores between adapted English and final Yoruba MSCRIM.

Test Statistic= Wilcoxon Signed Ranks Test.

α- level < 0.05

P-value = 0.270

Z-score = -1.102

Inference: There was no significant difference in participants' extended family responsibilities domain scores between adapted English and final Yoruba MSCRIM

Comment: The null hypothesis is hereby ACCEPTED.

Test 7:

There would be no significant difference in participants' work and education domain scores between adapted English and final Yoruba MSCRIM.

Test Statistic= Wilcoxon Signed Ranks Test.

α- level < 0.05

P-value= 0.911

Z-score = -0.112

Inference: No significant difference in participants' work and education domain scores between adapted English and final Yoruba MSCRIM

Comment: The null hypothesis is hereby ACCEPTED.

Test 8:

There would be no significant correlation in participants' total scores between final Yoruba MSCRIM measured on two occasions.

Test Statistic= Spearman Rank order correlation Coefficient

α- level < 0.05

P-value = 0.000

r-value = 0.891

Inference: There was significant correlation in participants' total scores between final Yoruba MSCRIM measured on twooccasions

Comment: The null hypothesis is hereby REJECTED**.**

Test 9:

There would be no significant correlation in participants' ADL and self-care domain scores between final Yoruba MSCRIM measured on two occasions.

Test Statistic= Spearman Rank order correlation Coefficient

α- level < 0.05

P-value = 0.000

r-value = 0.820

Inference: There was significant correlation in participants' ADL and self-care domain scores between final Yoruba MSCRIM measured on twooccasions.

Judgement: The null hypothesis is hereby REJECTED.

Test 10:

There would be no significant correlation in participants' social interactions and relationship domain scores between final Yoruba MSCRIM measured on two occasions.

Test Statistic = Spearman Rank order correlation Coefficient

α- level < 0.05

P-value = 0.000

r-value =0.837

Inference: There was significant correlation in participants' social interactions and relationship domain between final Yoruba MSCRIM measured on twooccasions.

Judgement: The null hypothesis is hereby REJECTED.

Test 11:

There would be no significant correlation in participants' home/family responsibilities and appearance domain scores between final Yoruba MSCRIM measured on two occasions.

Test Statistic= Spearman Rank order correlation Coefficient

α- level < 0.05

P-value = 0.000

r-value =0.858

Inference: There was significant correlation in participants' home/family responsibilities and appearance domain scores between final Yoruba MSCRIM measured on two occasions.

Judgement: The null hypothesis is hereby REJECTED.

Test 12:

There would be no significant correlation in participants' social interactions domain scores between final Yoruba MSCRIM measured on two occasions.

Test Statistic= Spearman Rank order correlation Coefficient

α- level < 0.05

P-value = 0.000

r-value = 0.571

Inference: There was significant correlation in participants' social interactions domain scores between final Yoruba MSCRIM measured on two occasions.

Judgement: The null hypothesis is hereby REJECTED.

Test 13:

There would be no significant correlation in participants' extended family responsibilities domain scores between final Yoruba MSCRIM measured on two occasions.

Test Statistic= Spearman Rank order correlation Coefficient

α- level < 0.05

P-value = 0.000

r-value = 0.812

Inference: There was significant correlation in participants' extended family responsibilities domain scores between final Yoruba MSCRIM measured on two occasions.

Judgement: The null hypothesis is hereby REJECTED.

Test 14:

There would be no significant correlation in participants' work and education domain scores between final Yoruba MSCRIM measured on two occasions.

Test Statistic= Spearman Rank order correlation Coefficient

α- level < 0.05

P-value = 0.000

r-value = 0.869

Inference: There was significant correlation in participants' work and education domain scores between final Yoruba MSCRIM measured on two occasions.

Judgement: The null hypothesis is hereby REJECTED.

Test 15:

There would be no significant correlation between participants' total scores and ADL and self-care domain scores on final Yoruba MSCRIM**.**

Test Statistic: Cronbach's alpha

P-value = 0.00

α- value = 0.893

Inference: The Participants' total scores was significantly correlated well with ADL and self-care domain scores on the final Yoruba MSCRIM.

Comment: The null hypothesis is hereby REJECTED.

Test 16:

There would be no significant correlation between participants' total scores and social interactions and relationship domain scores on final Yoruba MSCRIM.

Test Statistic: Cronbach's alpha

P-value = 0.00

α- value = 0.928

Inference: The participants' total scores correlated significantly with social interactions and relationship domain scores on the final Yoruba MSCRIM.

Comment: The null hypothesis is hereby REJECTED.

Test 17:

There would be no significant correlation between participants' total scores and home/family responsibilities and appearance domain scores on final Yoruba MSCRIM.

Test Statistic: Cronbach's alpha

P-value = 0.00

α- value = 0.918

Inference: The participants' total scores correlated significantly with home/family responsibilities and appearance domain scores on final Yoruba MSCRIM.

Comment: The null hypothesis is hereby REJECTED.

Test 18:

There would be no significant correlation between participants' total scores and social interactions domain scores` on final Yoruba MSCRIM.

Test Statistic: Cronbach's alpha

P-value = 0.00

α- value = 0.360

Inference: The participants' was significant correlation between participants' total scores and social interactions domain scores on final Yoruba MSCRIM.

Comment: The null hypothesis is hereby REJECTED.

Test 19:

There would be no significant correlation between participants' total scores and extended family responsibilities domain scores on final Yoruba MSCRIM.

Test Statistic: Cronbach's alpha

P-value = 0.00

α- value = 0.879

Inference: The participants' total scores correlated significantly with extended family responsibilities domain scores on final Yoruba MSCRIM.

Comment: The null hypothesis is hereby REJECTED.

Test 20:

There would be no significant correlation between participants' total scores and work and education domain scores on final Yoruba MSCRIM.

Test Statistic: Cronbach's alpha

P-value = 0.00

α- value = 0.648

Inference: The participants' total scores correlated significantly with work and education domain scores on final Yoruba MSCRIM.

Comment: The null hypothesis is hereby REJECTED.

CHAPTER FIVE

5.0 Discussion

5.1 Physical Characteristics of the participants

In this study, it was observed that about three quarters of the stroke survivors were aged above 50 years supports the fact that stroke is common in middle and old age. This findings is similar to the reports of Bonita (1992) who concluded that 88% of deaths were attributed to stroke among adults over 65 years. It is also worth noting that the average age of youngest person (only one participant in this study) among the participants who had a stroke was 29 years old. Owolabi and Ogunniyi (2009), in a Nigerian study had similar results in that their youngest participant was 30 years of age. Rhoda and Henry, (2003) and Hale *et al* (1999), had their youngest patients at 33 and 44 years old respectively. The mean age of the participants in this study was 60 years. These findings are similar to the other studies conducted in developed countries, in an American study by Eaves, (2000); the mean age of the sample was 67 years and in a Canadian study by Mayo *et al*, (2002), the average age was 68 years.

5.2 Loss of Meaningful Activities of Daily Living and Self-Care: Most participants expressed their loss of ability to undertake meaningful activities, when asked to explain their typical day or rather how they spend their day. Almost all participants said they did nothing all day other than watching television, just sitting or sleeping. When asked about their previous lifestyle it become very clear that these participants were not participating in activities they enjoyed.

Stroke is among the leading causes of long-term disability. Many people who have had a stroke live with physical, psychological and functional limitations that have an impact on their daily activities and social roles (Hamzat*et al*, 2009). In this study, a number of people with stroke were unable to resume their previous activities while little people do. Their participation in daily living and social roles were restricted, leading to handicap situations in various aspects of their lives. The participants were not occupied during the day. These findings are similar to the ones found by Hale *et al* (1999) and Obembe *et al* (2010), on a similar cohort of patients.

Meaningful activities are normally determined by the importance of the task and whether the person was doing the task prior to his/her stroke (Desrosiers *et al*, 2006b).

Driving a motor vehicle is essential to functional independence and community integration, as it enables access to work, shopping, health care and social activities (Griffen *et al*, 2009). Driving could also be part of a person's work. Stroke may affect this skill negatively and alternate transport such as public and private transport or relying on friends and family often does not adequately meet mobility needs of a person especially of a person who drove before the stroke. It was observed in this study that there were 6 male participants, who indicated that they were driving before the stroke. For some, driving was done as part of their daily work as they were taxi drivers or a delivery person. It is this inability to drive as part of one's work that partly led to patients feeling that their livelihood was threatened.

5.3 Social Interactions and Relationship: Social isolation emerged as a prominent theme for participants in this study. Participants expressed a sense of being cut off from the world as a result of their stroke and that their social relationships had deteriorated. The feeling of isolation made participants depend on other members of the family for activities of daily living and thus made them feel like they were a burden to everyone in the homestead.

Social isolation is defined through self-report of knowing fewer people well enough to visit in their homes (Boden-Albala *et al*, 2005). Most people with stroke in this study stated that their restriction in mobility was the major cause of their social isolation. As the majority of stroke survivors must depend on others for everyday activities (Connor *et al*, 2004),Social relationships are critical to survival for patients after stroke and become of critical importance for their quality of life (Lynch *et al*, 2008). Garbusinski*et al*, (2005), found different results in their study conducted in Gambia in that most participants participated in family life and resumed activities of daily living such as caring for children and attending family ceremonies. The authors attribute this to the social support and care that was given at home by the family members. Therefore, stroke survivors were be encouraged to socialize more so as to improve their recovery rate, to improve social relations and interactions with other people.

5.4 Home or Family Responsibilities and Appearance

Most participants in this study felt that their roles have been reversed because the activities they used to do were now done by a member of the family. This loss of role and reversal of role in the family, and community seemed to reduce the significance and importance of the person with a stroke. The striking impact of stroke also involves the patient's role and social function. The social changes among others include that the patient has to depend on others for his/her basic personal and social needs (Obembe *et al*, 2010). This dependence on others hugely changes the role of a person with stroke within his/her family and community.

Role changes are related to issues of dependence and social support. Social roles are altered when the patient can no longer work or dispense his/her responsibilities in a family and/or community. A shift in social roles challenges relationships that are already stressed by the newly dependant status of the patient (Lynch *et al*, 2008). In this study, all participants had a role to play as a mother, wife, father, sister in law, and a grandmother and these roles were fulfilled within the structure of a family or community. Many participants in this study were involved in the community and religion roles at large e.g. local church and community leaders or a preachers. On the other hands, some participants could not fulfil their role(s) fully due to stroke.

5.5 Reduction in Social Interactions Due to Restriction in Community Mobility

Poor walking ability has been found to reduce the quality of life with reduction in participation in functional activities and social interactions outside the home and therefore social isolation (Ada *et al*, 2009).In this study, all patients expressed concerns regarding their reduced mobility within their homes and within the community.Walking is an important human activity which enables us to be productive and participative members of a community (Ada *et al*, 2009). The reduction in the ability to walk results in major limitations in community participation. Hill *et al*, (1997), found that many individuals after stroke could not walk fast enough to do their shopping. The consequence of poor walking ability is widespread and affects the entire family (Ada *et al*, 2009). The impression gained from participants in this study was not that they could not walk but were afraid to walk because of falling, slopes, terrain, slowing others up, difficulty negotiating furniture, embarrassed to be in public due to the way they were walking especially those who were using a walking aid and these affects their social interactions. These

were revealed on the tables of statistical analysis where the test re-test reliability of social interactions on final Yoruba MSCRIM on two occasions and internal consistency of social interactions on final Yoruba MSCRIM were computed. The results yielded moderate correlation value of (r=0.57) to low Chronbach's Alpha value of (α=0.36) respectively (table 5 and 6).

In describing what life was like in this study, participants spoke at length about restrictions and losses of "taken for granted" freedoms and abilities. Some participants were unable to move around their homes let alone in the community while others were able to move in different environments. They expressed feelings of frustration, de-motivation and discouragement. These feelings were shared by most participants in their different environments.

5.6 Extended Family Responsibilities: Participants felt that they were now going to be a burden to their spouses, children or family members; some even felt pity for their caregivers because of the stress they were undergoing every day, whilst some felt that they are not going to ever recover from the stroke. The extreme case of loss of hope was expressed as wanting to die, by some participants. It is a common phenomenon for stroke survivors to express feelings of despair and helplessness after a stroke (Pilkington, 1999). The concept of hope can be characterized by expressions of uncertain feelings for the future. The feeling of hopelessness is brought about by realising that they have acquired a new disability that they have to cope with for the rest of their lives.

The participants in this study expressed feelings of hopelessness and helplessness, especially being able to recover. On the contrary, participants in the Pilkington's study (1999) expressed feelings of hopefulness by using phrases like "getting back to normal" and "resuming everyday activities". In view of these hopes, participants in the Pilkington's study described their efforts and progress towards recovery. They considered making changes to adjust to the new disability in order to enhance their health and quality of life (Pilkington, 1999). In the researcher's opinion, the participants in this study focused more on the difficulties under the circumstances they faced, though most of them performed their responsibilities in their little capacity, therefore saw life in a very negative way, and were not able to cope, subsequently lost hope.

Whereas participants in the Pilkington's study are from a developed country (Canada), where resources are available and accessible.

5.7 Work and Education: The inability to return to work appeared to be more of a concern for the participants. This affects the person's livelihood and existence. Returning to work for people with stroke may contribute significantly to their life satisfaction, well-being, self-worth and social identity, giving an opportunity to maintain independence as far as physically possible with the income generated through employment (Wolfenden and Grace, 2009). Pressures such as financial hardship (the lack of money to pay debts) may influence return to work. Return to work may be seen as an indication of recovery of patients with stroke. Garbusinski *et al* (2005), in a study to describe the clinical outcome of stroke patients admitted to a tertiary hospital in Gambia, found that less than half of the participants in their study (n=162) were economically active before the stroke but had one year later resumed a paid activity i.e. had returned to their paid jobs.

The inability to drive as part of one's work was expressed by most participants especially most men. In this, driving a motor vehicle is essential to functional independence and community integration, as it enables access to work, shopping, health care and social activities (Griffen *et al*, 2009). In this study, most participants expressed moderate desire to drive again following stroke especially those whose occupation was driving.

Lastly the inability to take care of livestock and working in the garden were viewed as being important by participants in this study in order to sustain family life. Most participants in this study had livestock in the form of cattle, sheep, goats, chickens and dogs. These livestock provided food for the family in the form of milk and meat as well as providing protection/security for the family. Most of the participants also had garden at their backyard for them to plant vegetables and common staple crops such as plantains, bananas, cassava, fruit trees and citrus plants. The participants felt that it was necessary for them to be able to take care of their livestock and farming in their garden in order to continue to provide for the family, but most participants cannot do due to financial constraints.

5.8 Community Reintegration Level of the Participants

Stroke survivors with stronger community reintegration have been found to have better outcomes (National Stroke Foundation, 2010). The level of community reintegration reported by the participants in this study was moderately good. This implies that many stroke survivors were integrated back into their communities. Stroke survivors who were unemployed, of older age, with right sided weakness, poorly educated and were using assistive devices (especially frames or wheelchairs) tended to have problems in reintegrating back into their community (Obembe *et al*, 2013). This is similar to the reports that female gender, older age, unemployment, usage of ambulatory aids and right sided weakness have been previously implicated as predictors for poor community reintegration among stroke survivors (Chau *et al*, 2009; Muurtezani *et al*, 2009; Baseman *et al*, 2010; Obembe *et al*, 2013). Even though the level of community reintegration of the participants was not significantly different between participants' domain scores on adapted English and final Yoruba MSCRIM, 88.3% of participants affected with stroke in this study were married while their employment status dropped from 75% pre-stroke to 46.7% post-stroke. The economic impact of the survivors was further highlighted in this study by 28.3% of the participants who lost their source of livelihood post stroke. Their educational level was reported as 15% primary to 21.7% secondary, 21.7% non-University educationsuch as N.CE and teachers' training to 36.7% University graduate, while 5% had no formal education. Educational attainment has positive influence on adherence to home exercise (Hartigan *et al*, 2000). The stroke survivors for this study had 56.7% of the participants' with left-sided weakness when compared to 43.3% right-sided weakness, 71.7% were ambulated independently post stroke and 86.7% had one-time stroke episode and were within the age ranged from 25-65 years with total numbers of 3 participants above 75 years (predictors for quick recovery)

Statistically, if the items on the scale are truly measuring the same attribute, they should be moderately correlated with each other and with the total score. These correlations are measures of internal consistency (Hattie, 1985). Additionally, as with other correlation statistics, the Cronbach's alpha index in literature ranges from 0.00 to 1.00. The Acceptable reliability of instruments developed for research purposes can be as low as 0.60 although 0.80 is a generally accepted threshold for internal consistency (Streiner and Norman, 2003). Therefore, a value

that approaches 0.90 is high, and the scale can be considered reliable (Cronbach, 1951). The final Yoruba MSCRIM produces significant psychometric properties in its assessments and suitable for what it was designed to measure and so final Yoruba MSCRIM is reliable and consistent.

The moderately good results of community reintegration observed in this study was similar to the report among the population from developed nation such as Europe, Hong Kong and Canada (Pang *et al*, 2007; Chau *et al*, 2009). The reason for this was that the participants' for this study were recruited from urban centres where better and adequate rehabilitation services from tertiary health institutions with different health professionals, such as, physiotherapists, occupational and speech therapists, orthotics and prosthesis, medical social workers were provided. Rehabilitation services that provide access to specialist stroke expertise reduce the odds of death and dependency compared with general rehabilitation (National Stroke Foundation, 2010).

5.9 Psychometric Properties of Final Yoruba MSCRIM

The results from the hypothesis testing that there was no significant difference in participants' total or domain scores on the adapted English and final Yoruba MSCRIM support the findings that participants' domain scores on the adapted English MSCRIM was not differ significantly from the final Yoruba MSCRIM (z-score= -0.14 to -1.42). This provides the evidence for concurrent validity of the scale. The result is consistent with findings from previous studies by McColl (2001) and Stroke Engine (2014). The significant correlation between the participants' total and domain scores of final Yoruba MSCRIM on two occasions ($r = 0.89$, $p = 0.00$), provides the evidence for reliability of the scale. The correlation coefficient values for reliability fall within the acceptable range (Duncan *et al*, 2001; Pang *et al*, 2011; Stroke Engine, 2014). The Acceptable reliability of instruments developed for research purposes can be as low as 0.60 although 0.80 is a generally accepted threshold for internal consistency (Streiner and Norman, 2003). Participants' domain scores correlated significantly with total scores on final Yoruba MSCRIM with Cronbach's alpha statistics(α=360-961, at $p = 0.00$) recorded in this study, indicates internal consistency (Pang *et al*, 2011; Stroke Engine, 2014). Therefore, the scale is valid, reliable and internally consistence

CHAPTER SIX

SUMMARY, CONCLUSION AND RECOMMENDATION

6.1 Summary

Stroke is a leading cause of long-term disability which results from brain cell damage due to either an interruption of the blood supply to the brain or hemorrhage into the brain tissue. As a result of an increasing older adult population, coupled with an ever improving acute phase survival rate, the absolute number of persons with stroke is increasing. Of the individuals who survive, approximately 75 to 85% are ultimately discharged home. Ninety percent of stroke survivors have some functional disability with mobility being a major impairment. Impairments resulting from stroke, such as muscle weakness, pain, spasticity and poor balance can lead to a reduced tolerance to activity and further sedentary lifestyle.Improved walking ability is one of the most often stated goals by people with stroke undergoing rehabilitation and with those individuals living with stroke in the community.Although 65% to 85% of stroke survivors learn to walk independently by 6 months post stroke, gait abnormalities persist through the chronic stages of the condition. Community reintegrationis the main of goals of stroke rehabilitation and is defined as assumption of culturally acceptable lifestyle and development of appropriate environmental social roles following disability after chronic illness and its measure is a multidimensional construct that may include several domains. It is an objective outcome measure of rehabilitation in which standardised and conceptual scales are needed for its objective measurement.

The main focus of stakeholders for stroke management had been shifted from mere survival to how useful and best a patient could be managed back into his/her pre-morbid conditions.

Consequently, this necessitating availability of psychometrically sound scales for assessing the level of community reintegration after stroke. Such scales must take the contextual factors in which patients live into consideration. However, almost all the available scales to measure community reintegration of survivors were from high-income countries. Scales often reflect the environment and culture of the people they are originally developed for. Nevertheless, the MSCRIM is a stroke specific scale developed by a Black African for use by Africa for measuring community reintegration among stroke survivors in South Africa and was found amenable to Igbo culture and environment in Nigeria. It is a forty-item, six-domain and self-report scale. The fact that South Africa culture is similar to that of Nigeria in some areas, there are specific cultural variabilities. Hence, the need to adapt the MSCRIM into Nigeria Culture and environment in order to promote its use in Nigeria. Therefore, this research aims to translate the original English MSCRIM into Yoruba language and validate the adapted Yoruba MSCRIM, one of the three major tribes in South-Western Nigeria, so that it can be used for Yoruba-speaking stroke survivors who do not understand English language among the stroke survivors.

Permission to adapt and translate the MSCRIM into Yoruba culture and environment was given by developer. Health Ethics Research committee of the tertiary hospitals where data was collected serves as signatory to the approval of the protocols and procedures of the study prior to the collection of data from stroke survivors. Two phases of procedure were used. The first phase was to adapt the original MSCRIM into Yoruba culture and environment by a panel of six experts at a meeting. The pre-final Yoruba adapted MSCRIM was approved on the consensus reached by the expert panel in their second meeting. This version was pretested on thirty stroke survivors and they were engaged in cognitive debriefing interview on each items to probe their understanding of the questionnaire. Stroke survivors used for this study were those receiving Physiotherapy treatments from selected three general hospitals in Lagos state at Gbagada, Isholo and Marina. Reviewed of the findings were done by the members of the expert panel during their third meeting who gave the permission to move to the other phases.

Second phase investigated construct validity, test re-test reliability and internal consistency of the final Yoruba adapted MSCRIM. Sixty stroke survivors were recruited consecutively with a validation design from Physiotherapy department of four selected tertiary health institutions

which are: LUTH, LASUTH, BGOBI, and FMC- EBUTE-META. The adapted English MSCRIM was administered first to the participants who picked “E” and the final Yoruba MSCRIM was administered next through interview to the participants who picked “Y”. The final Yoruba MSCRIM was re-administered again on the second occasions through interview to participants after one week of the first administration.

All the six domains and 40 items on the original MSCRIM were retained but 22 of the items were modified. Nine terms on the English MSCRIM were removed from domain 1, 2, 3 and 5 while 19 other terms were replaced with Yoruba culture equivalent terms. Twenty eight examples and seventeen alternative phrases/nouns were added to the adapted MSCRIM. “Not Available” was added to the response scale in domain 2 and 5 to accommodate or to make provision for participants who still have the ability to work in the garden and caring for livestock but the facilities to carry it out were “not available” due to financial constraint. The level of community reintegration of stroke survivors in the South-West Nigeria is moderately good and is influence by survivors’ employment status, side of weakness, severity of the injury in the brain, ambulatory status, type of the ambulatory aids used, highest educational attainment and age.Data were analysed using descriptive statistics of frequency, percentages, mean, standard deviation and inferential statistics of Wilcoxon signed rank test, Spearman rank order correlation coefficient and Cronbach’ alpha statistics. Alpha level was set at ≤ 0.05

The participants (30 males) and (30 female) were aged 59.98±10.32 years for the validation process. There was no significant difference between the participants’ total scores on adapted English and final Yoruba MSCRIM ($p = 1.00$, z-score=0.00). Participants’ domain scores did not show any significant difference on final Yoruba and adapted English MSCRIM (Were ranged from z-score= -0.14 to -1.42) (evidence of concurrent validity). There was significant correlation in Participants’ total scores of final Yoruba MSCRIM on two occasions ($r=0.89$, $p=0.00$) (evidence of test retest reliability). There was significant correlation between participants’ domain scores and total scores on final Yoruba MSCRIM (Were ranged from $\alpha=0.36$-0.96, at $p=0.00$) (evidence of internal consistency)

The final Yoruba of MSCRIM is a valid, reliable and internally consistent and it may be used for measuring community reintegration among Yoruba stroke survivors.

06.2. Conclusion

1. The final Yoruba MSCRIM scale is a valid, reliable, internally consistent and suitable to measure community re-integration among stroke survivors who are Yoruba-speakers. It is therefore recommended for evaluating community re-integration among Yoruba-speaking stroke survivors.

2. The level of community reintegration of stroke survivors in the South-West Nigeria is moderately good and is influence by survivors' employment status, side of weakness, severity of the injury in the brain, ambulatory status, type of the ambulatory aids used, highest educational attainment and age.

6.3 Recommendations

The recommendation for this study were:

1. The final Yoruba MSCRIM be used by clinicians and researchers to measure community reintegration among Yoruba individual with stroke.

2. Further studies should be carried out to determine the responsiveness and other psychometric properties of final Yoruba MSCRIM.

3. The original MSCRIM should be cross-culturally adapted toanother indigenous Nigerian languages to promote its utility in Nigeria.

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SURVEY INSTRUMENTS USED FOR THE STUDY

APPENDIX I

INFORMED CONSENT FORM

My name my name is Olaniyan Akinlade Sola. I am a Master of Philosophy (MPhil) student in Physiotherapy Department, University of Ibadan, Nigeria (Matriculation Number 141476). I am carrying out research in Lagos on "cross-cultural adaptation and validation of the Maleka stroke community re-integration measure among Yoruba stroke survivors". I will need to ask you some questions which you will be required to respond to through a questionnaire. In addition, you are expected to carry out some functional activities in other to assess your level of function and re-integration into the society. Please, you are implored to carry out this activity to the best of your ability so that a good assessment can be obtained. The process of assessment will not cost you any harm or injury. Kindly note that your answers will be kept very confident. You will be given a code number and your name will not be written on the form so that your name will never be used in connection with any information you provided in the questionnaire. The information of the responses you give on the consequences of stroke on your level of functional activity and re-integration into the community shall be used as means of correlation and validation on the source (English) and Yoruba adapted versions of MSCRIM in this research. Participating in this study is voluntary and you are also free to withdraw your participation at any time. Please, you can take this opportunity to ask questions and discuss any related issues with the researchers. We will greatly appreciate your help in responding to the questionnaire which will take you between 10-15 minutes to complete.

CONSENT: Now that the study has been well explained to me and I fully understand the content of the study process, I will be willing to take part in the study.

---------- ----------

Signature/ Thumb Print of Participant/ Date **Signature of Researcher/Date**

Phone: 234-802-3273592

APPENDIX II

SOCIO-DEMOGRAPHIC DATA FORM

The following questions ask you about personal characteristics:

1. Code Number____

2. Your age range in years: 15-24 [ ] 25-34 [ ] 35-44 [ ] 45-54 [ ] 55-64 [ ]

   65-74 [ ] 75-84 [ ] 85-94 [ ] Above 100 [ ] Specific Age----------

3. Your sex: Male [ ] Female [ ]

4. Marital Status: Married [ ] Single [ ] divorced [ ] widow [ ] widower [ ]

5. Educational status: None [ ] Primary [ ] secondary [ ] post-secondary [ ] post-graduate []

6. Pre-stroke ES: Employed [ ] Unemployed [ ] Retired [ ] Student [ ]

7. Post-stroke ES: Employed [ ] Unemployed [ ] Retired [ ] Student [ ]

8. Type of Occupation: Civil servant [ ] Trading/Business [ ] Manual job [ ] self-employed [ ]

9. Number of episodes: One time [ ] Two times [ ] Three times [ ] Four times [ ]

10. Stroke affected side: Left [ ] Right [ ] both sides [ ]

11. Ambulation Status: Independent [ ] Cane [ ] Walking Frame [ ] Wheelchair [ ]

12 Where do you lived, before stroke----------and after stroke----------

13 How long have you been living there:3-6 months [ ]7-12 months [ ] 1year and above

APPENDIX III

Physiotherapy Department,
College of Medicine, University of Ibadan,
Ibadan, Nigeria.
20 Sept., 2016.

Physiotherapy Dept, School of Therapeutics Sciences,
Faculty of Health Sciences, Uni. of the Witwatersrand,
Johannesburg.
Dear Sir,

REQUEST FOR PERMISSION TO CROSS-CULTURALLY ADAPT THE MALEKA STROKE COMMUNITY REINTEGRATION MEASURE (URBAN VERSION) TO YORUBA LANGUAGE

My name is Olaniyan, Akinlade Sola. I am a Master of Philosophy (MPhil) student in Physiotherapy Department, University of Ibadan, Nigeria (Matriculation Number 141476). For my research project, I intend to cross-culturally adapt the Maleka Stroke Community Reintegration Measure (MSCRIM) (urban version) into Yoruba Language (the indeginous language of South-west Nigeria and one of the three major indeginous languages of Nigeria) and to validate it among Yoruba stroke survivors, under the supervision of Dr Aderonke Akinpelu, a Reader in the Department of Physiotherapy, University of Ibadan, Ibadan.

In accordance with the American Association Orthopaedic Surgeons' guideline for cross-cultural adaptation of self-report measures (Beaton et al, 2000), which I intend to follow in this study, I hereby seek your permission, as the developer of the MSCRIM, to cross-culturally adapt the scale to Yoruba language. I have downloaded the scale from the internet from the PDF of your doctoral thesis. I promise to give you a feedback at the end of the cross-cultural adaptation processas required by the guideline.

I shall be grateful if you will kindly give me the permission, so that i can embark on the study.

Thank you very much for your kind consideration and prompt response..

Yours faithfully,

Olaniyan Akinlade Sola.

APPENDIX IV

Dear Olaniyan Akinlade Sola

My apologies for this very late reply.

You have my permission to cross culturally adapt the MSCRIM (urban version).

In the future please use this email. Thank you.

Regards

Assoc Prof Douglas Maleka MPH, PhD (Wits)
Faculty of Health Sciences: Health Sciences Education
Tel : 015 268 4233
Fax : 015 268 2865
E-mail : Douglas.Maleka@ul.ac.za

From: Douglas Maleka [mailto:morake7maleka@gmail.com]
Sent: 14 November 2016 01:23 PM
To: Maleka, Douglas <Douglas.Maleka@ul.ac.za>
Subject: Fwd: permission to cross-culturally adapt the Maleka Stroke Community Re-integration Measure (Urban Version) to Yoruba Language

APPENDIX V

THE MALEKA STROKE COMMUNITY REINTEGRATION MEASURE (URBAN VERSION)

The therapist will read the items concerning your community reintegration following stroke to you (patient and/or caregiver), please respond appropriately.

At the end of the interview the therapist will give you feedback regarding your community reintegration and discuss the way forward regarding your rehabilitation.

DOMAIN 1: ADL AND SELF CARE

Item	**No (0)**	**Able with major help (1)**	**Able with minor help (2)**	**Able with no help (3)**
1 Are you able to get up and out of bed in the morning?				
2 Are you able to pour water into a kettle/basin?				
3 Are you able to wash yourself?				
4 Are you able to dress yourself?				
5 Are you able to feed yourself?				
6 Are you able to drink from a cup or glass?				
7 Are you able to move around uneven/hilly areas?				
8 Are you able to move around in your home?				
9 Are you able to move around in your yard?				
10 Are you able to move around in your community?				

11 Are you able to collect water from the river/communal tap?				
12 Are you able to carry heavy object(s) for example shopping bags (2-3)?				
13 Are you able to get to the clinic/hospital to collect your medication or for rehabilitation/nursing/ medical help?				
14 Are you able to use the same transport you used before the stroke?				
15 Are you able to do an activity for self-enjoyment or relaxation such as to listen to a radio or watch TV or read a book/ bible/magazine/newspaper?				
16 Are you able to get out of the house to go shopping in town or going out with friends or watch a soccer match at a stadium?				

DOMAIN 2: SOCIAL INTERACTIONS AND RELATIONSHIP

Item	No (0)	Able with major help (1)	Able with minor help (2)	Able with no help (3)
1 Are you able to work in your garden or fields?				
2 Are you able to attend social events in your community such as funerals, parties or weddings?				
3 Are you able to attend burial society, social club meetings and other structures meeting or meetings called by the chief/councillor in your community?				
4 Are you able to carry out your community roles e.g. singing in the choir, helping at the local school, digging of a grave, community leadership, preaching or evangelizing to people or burying your congregates,?				
5 Are you able to attend religious, spiritual and other religious related activities e.g. bible studies, home cell meetings, prayer meetings?				
6 Are you able to do a physical activity such as playing any sport?				
7 How satisfied are you with your interaction with other people?	**Not Satisfied (0)**		**Satisfied (1)**	**Very satisfied (2)**

DOMAIN 3: HOME/FAMILY RESPONSIBILITIES AND APPEARANCE

Item	No (0)	Able with major help (1)	Able with minor help (2)	Able with no help (3)
1 Are you able to clean your house and yard i.e. sweep, pick up papers and/or mudding the floors with cow dung?				
2 Are you able to cook and prepare meals for your family?				
3 Are you able to clean the area and utensils used for preparing meals?				
4 Are you able to wash the clothes?				
5 Are you able to hang the clothes on a washing line or are you able to dry your clothes the way you have always done?				
6 How satisfied are you with your appearance in public?	**Not Satisfied (0)**		**Satisfied (1)**	**Very satisfied (2)**
7 How satisfied are you with your ability to physically assist someone?	**Not satisfied (0)**		**Satisfied (1)**	**Very satisfied (2)**

DOMAIN 4: SOCIAL INTERACTIONS

Item	**Not satisfied (0)**	**Satisfied (1)**	**Very satisfied (2)**	
1 How satisfied are you with your visiting other people and them visiting you?				
2 How satisfied are you with help and support that you receive from your family and friends?				
3 How satisfied are you with your ability to solve family and friend's problems				
4 Are your friends and family assisting you with your travelling needs?	No (0)	Yes, but rarely (1)	Yes, sometimes (2)	Yes, always (3)
5 Are you able to easily remember things told and events?	Not at all (0)	To some extent (1)	To a full extent (2)	
6 Are you able to make decisions regarding your life and family issues?	Not at all (0)	To some extent (1)	To a full extent (2)	

DOMAIN 5: EXTENDED FAMILY RESPONSIBILITIES

Item	No (0)	Able with major help (1)	Able with minor help (2)	Able with no help (3)
1 Are you able to take care of your livestock (if you have) e.g. feed your dogs or herd/tend your cattle/ goats, including milking?				
2 Are you able to teach children home keeping tasks e.g. cultural/traditional cooking, and mudding with cow dung?				

DOMAIN 6: WORK AND EDUCATION

Item	No (0)	Able with major help (1)	Able with minor help (2	Able with no help (3)
1 Are you able to go back to work (paid or volunteer)?				
2 Are you able to attend school or training programmes (including adult education) in or out of your community?				

APPENDIX VI

YORUBA CULTURE ADAPTED VERSION OF THE MALEKA STROKE COMMUNITY REINTEGRATION MEASURE (URBAN VERSION)

The therapist will read the items concerning your community reintegration following stroke to you (patient and/or caregiver), please respond appropriately.

At the end of the interview the therapist will give you feedback regarding your community reintegration and discuss the way forward regarding your rehabilitation.

DOMAIN 1: ACTIVITIES OF DAILY LIVING AND SELF CARE

Item	**No (0)**	**Able with major help (1)**	**Able with minor help (2)**	**Able with no help (3)**
1 Are you able to get up and out of bed in the morning?				
2 Are you able to pour water into a kettle/basin/bucket?				
3 Are you able to wash/bathe yourself?				
4 Are you able to dress yourself?				
5 Are you able to feed/drinking yourself?				
6 Are you able to drink from a cup/glass/tumbler?				
7 Are you able to move around uneven/hilly areas?				
8 Are you able to move around in your home?				
9 Are you able to move around in your yard/compound/backyard?				
10 Are you able to move around in your community?				
11 Are you able to collect/fetch water from				

the well/river/communal tap?				
12 Are you able to carry heavy object(s) for example one bag of sachet (pure) water/20 litres jerry can of water (oil)/a crate of bottled soft drink?				
13 Are you able to get to the clinic/hospital to collect your medication or for rehabilitation/nursing/ medical help?				
14 Are you able to use the same transport you used before the stroke?				
15 Are you able to do an activity for self-enjoyment or relaxation such as to listen to a radio or watch TV or read a book/magazine/newspaper?				
16 Are you able to get out of the house to go cinema/ shopping in town/ going out with friends/family members/ watch a soccer match at a stadium/viewing centre?				

DOMAIN 2: SOCIAL INTERACTIONS AND RELATIONSHIP

Item	No (0)	Able with major help (1)	Able with minor help(2)	Able with no help (3)	Not Available
1 Are you able to work in your garden or fields?					
2 Are you able to attend social events/parties in your community such as weddings/birthday/naming/lunching/council ceremonies?					

3 Are you able to attend social club meetings and other structures meetings called by family/landlord/resident association/ trade/cooperative society meetings?					
4 Are you able to carry out your community roles e.g. environmental sanitation/road repair/traffic control/community leadership?					
5 Are you able to attend religious activities?					
6 Are you able to do a physical activity such as playing any sport, trekking, brisk walking, jogging, gardening?					
7 How satisfied are you with your interaction with other people?	**Not Satisfied (0)**		**Satisfied (1)**	**Very satisfied (2)**	

DOMAIN 3: HOME/FAMILY RESPONSIBILITIES AND APPEARANCE

Item	**No (0)**	**Able with major help (1)**	**Able with minor help(2)**	**Able with no help (3)**
1 Are you able to clean your house and yard i.e. sweep, pick up papers and/or mop or scrub the floor				
2 Are you able to cook or prepare meals for your family or carry out minor repair works at home e.g. changing bulbs/switching on generators?				
3 Are you able to clean the area and				

utensils used for preparing meals? /Are you able to wash or clean your car?				
4 Are you able to wash clothes?				
5 Are you able to hang the clothes on a line or are you able to dry your clothes the way you have always done?				
6 How satisfied are you with your appearance in public?	**Not Satisfied (0)**		**Satisfied (1)**	**Very satisfied (2)**
7 How satisfied are you with your ability to physically assist someone?	**Not satisfied (0)**		**Satisfied (1)**	**Very satisfied (2)**

DOMAIN 4: SOCIAL INTERACTIONS

Item	**Not satisfied (0)**	**Satisfied (1)**	**Very satisfied (2)**
1 How satisfied are you with your visiting other people and them visiting you?			
2 How satisfied are you with help and support that you receive from your family and friends?			
3 How satisfied are you with your ability to solve family and friend's problems			

4 Are your friends and family members assisting you with your travelling needs?	No (0)	Yes, but rarely (1)	Yes, sometimes (2)	Yes, always (3)

5 Are you able to easily remember things told and	Not at all (0)	To some extent (1)	To a full extent (2)

events?			
6 Are you able to make decisions regarding your life and family issues?	Not at all (0)	To some extent (1)	To a full extent (2)

DOMAIN 5: EXTENDED FAMILY RESPONSIBILITIES

Item	No (0)	Able with major help (1)	Able with minor help (2)	Able with no help (3)	Not avail-able
1 Are you able to take care of your livestock (if you have) e.g. feed your dogs or herd/tend your cattle/ goats?					
2 Are you able to teach children home keeping tasks e.g. cultural/traditional cooking, and housecleaning/mopping/ scrubbing?					

DOMAIN 6 WORK AND EDUCATION

Item	No (0)	Able with major help (1)	Able with minor help (2	Able with no help (3)
1 Are you able to go back to work (paid or volunteer)?				
2 Are you able to attend school or training programmes (including adult education), vocational training, conference attendance in or out of your community?				

APPENDIX VII

Summary of Words and Phrases Modified in Adapting the MSCRIM into Yoruba Culture and Environment

DOMAIN	ITEM	ORIGINAL	ADAPTED
1	2	Are you able to pour water into a kettle/ basin?	Are you able to pour water into a kettle/**bucket**?
1	3	Are you able to wash yourself?	Are you able to wash/**bathe** yourself?
1	5	Are you able to feed yourself?	Are you able to feed/ **drink by** yourself?
1	6	Are you able to drink from a cup or glass? “	Are you able to drink from a cup/glass/ **tumbler**?
1	9	Are you able to move around in your yard?	Are you able to move around in your yard/**compound**/**back yard**?
1	11	Are you able to collect water from the river/communal tap?	Are you able to collect/ **fetch** water from the **well** /river/communal tap?
1	12	Are you able to carry heavy object(s) for example shopping bags (2-3)	Are you able to carry heavy object (s) for example **one bag of sachet (pure**) **water/ 20 litres jerry can of water (oil)/ a crate of bottled soft drink?**
1	15	Are you able to do an activity for self-enjoyment or relaxation such as to listen to a radio or watch TV or read a book/ bible/ magazine/newspaper?	Are you able to **perform** self-enjoyment or relaxation activity such as listen to a radio or watch TV or read a book/ magazine/newspaper?
1	16	Are you able to get out of the house to go shopping in town or going out with friends or watch a soccer match at a stadium?	Are you able to **move** out of the house to **cinema**/ shopping in town/ going out with friends/ **family members**/ watch a soccer match at a stadium/ **viewingcentre**?
2	2	Are you able to attend social	Are you able to attend **parties** in your

		events in your community such as funerals, parties or weddings?	community such as weddings/ **birthdays**/ **naming**/ **lunching**/ **council ceremonies**?
2	3	Are you able to attend burial society, social club meetings and other structures meeting or meetings called by the chief/ councillor in your community	Are you able to attend social club meetings called by **family**/ **landlords**/ **residentassociation**/ **trade**/ **cooperative society meetings**?
2	4	Are you able to carry out your community roles e.g. singing in the choir, helping at the local school, digging of a grave, community leadership, preaching or evangelizing to people or burying your congregates?	Are you able to carry out the following community roles **such assinging and dancing with age groups/grades meeting/**community leadership **environmental sanitation**/ **road repair**/ **traffic control**
2	5	Are you able to attend religious spiritual and other religious related activities e.g. bible studies, home cell meeting-s, prayer meetings?	Are you able to attend **religious activities**?
2	6	Are you able to do a physical activity such as playing any sport?	Are you able to do physical activity such as **trekking**, **brisk walking**, **jogging and gardening**?
3	1	Are you able to clean your house and yard i.e. sweep pick up papers and/ or mudding the floors with cow dung?	Are you able to **sweep** your house and yard i.e. pick up papers and/ or **mop** or **scrubthe floor**?
3	2	Are you able to cook and prepare meals for your family?	Are you able to prepare meals for your family or **carry out minor** repair **works at home** e.g. **changing bulbs/ switching on generator?**

3	3	Are you able to clean the area and utensils used for preparing meals?	Are you able to **mop up** the area and clean utensils used for preparing meals? **Are you able to wash or clean your car?**
3	5	Are you able to hang the clothes on a washing line or are you able to dry your clothes the way you have always done?	Are you able to hang clothes on **a line** or are you able to dry your clothes the **former** way you have always done?
4	4	Are your friends and family assisting you with your travelling needs?	Are your friends and family **membershelping** you with your travelling needs?
5	1	Are you able to take care of your livestock (if you have) e.g. feed your dogs or heard/tend your cattle/goats, including milking?	Are you able to take care of your livestock **such as** feed your dog or tend your cattle/goats?
5	2	Are you able to teach children home keeping tasks e.g. cultural/traditional cooking, and mudding with cow dung?	Are you able to teach children home keeping tasks **such as** cooking, **house cleaning, mopping and scrubbing**?
6	2	Are you able to attend school or training programmes (including adult education) in or out of your community?	Are you able to attend school or training programmes **such asvocational training, conference attendance** in or out of your community?

Key: Modified words/ phrases are bolder

APPENDIX VIII
ỊẸDÀ ÀSÀ YORÙBÁ TIÌGBÉLÉWỌ̀N ÈTÒ ÌPADÀBỌ́SÍPÒ AJẸMÁWÙJỌ TI

ÀWỌN ALÁÌSÀN RỌPÁRỌSẸ̀
Tàbí
ỊẸDÀ ÀSÀ YORÙBÁ TIÌGBÉLÉWỌ̀N ÈTÒ ÌPADÀBỌ́SÍPÒ AJẸMÁWÙJỌ TI SÍRÒKÌ MALEKA

Tẹ́rápíìsì yóò ka gbogbo ohun tó ní í ṣe pẹ̀lú ètò ìpadàbọ́sípò ajẹmágbègbè sí i yín, jọ̀wọ́, dáhùn bó ti tọ́.

Lẹ́yìn ìfọ̀wọ̀wánilẹ́nuwò yìí, Tẹ́rápíìsì yóò fi àbájáde tó ní í ṣe pẹ̀lú ìpadàbọ́sípò ajẹmágbègbè tó ọ létí, yóò sì jíròrò pẹ̀lú rẹ lórí ọ̀nà àbáyọ tó ní í ṣe pẹ̀lú ìpadàbọ́sípò.

ÌPÍN KÌÍNÍ: ÌTỌ́JÚ-ARA-ẸNI

Ohun	**Rárá (0)**	**Ṣíṣe pẹ̀lú ìrànlọwọ́ tópọ̀ (1)**	**Ṣíṣe pẹ̀lú ìrànlọwọ́ díẹ̀(2)**	**Ṣíṣe lálái Nílò Iranlowo (3)**
1.Ṣé o lè dìde kúrò lórí ìbùsùn láàárọ?				
2.Ṣé o lè da omi sínú kẹ̀tù/bàsíà tàbí ike?				
3.Ṣé o lè dá wẹ ara rẹ?				
4.Ṣé o lè dá múra/wọ̀ṣọ?				
5.Ṣé o lè dá jẹun/mu omi fúnra rẹ?				
6.Ṣé o lè mu nǹkan láti inú ife?				
7.Ṣé o lè rìn gun òkè/àpáta?				
8.Ṣé o lè rìn káàkiri nínú ilé rẹ?				
9.Ṣé o lè rìn káàkiri ní gbàgede ìta/ẹ̀yìnkùlé ilé rẹ?				

10.Ṣé o lè rìn káàkiri ní àwùjọ rẹ?				
11.Ṣé o lè pọn omi láti inú kànnga/odò/omi ero àdúgbò				
12.Ṣé o lè gbé (àwọn) nǹkan wuwo b.abáàgì/àpò omi inú ọ̀rá, ogún lítà omi/epo, kíréètì mínírà kan?				
13.Ṣé o lè lọ sílé ìwòsàn/ibi ìtọ́jú látigba òògùn fún ìpàdàsípò/ìtọ́jú?				
14.Ṣé o lè lo ìlànà líloṣ káàkiri pẹ̀lú ọkọ̀tí o máa ń lò tẹ́lẹ̀ṣáájú àìsàn ropárọsẹ̀ yìí?				
15.Ṣé o lè ṣe àwọn ìṣe ajẹmáfẹ́bí igbígba ètò lórí rédíò, wíwo tẹlifíṣàn tàbí kíka ìwé/ìwé ìròyìn.				
16.Ṣé o lè jáde láti lọ ṣere/gbafẹ́ní ilésinimá/ra nǹkan/jáde pẹ̀lú àwọn ọ̀rẹ́tàbí ẹbí, wo eré ìdárayá bọ́ọ̀lù ní gbọ̀gàn/pápá eré ìdárayá?				

ÌPÍN KEJÌ: TÍTANMỌ́ ÌBÁṢEPỌ̀ ÀWÙJỌ

Ohun	**Rárá (0)**	**Ṣíṣe pẹ̀lú ìrànlọwọ tópọ (1)**	**Ṣíṣe pẹ̀lú ìrànlọwọ díẹ(2)**	**Ṣíṣe lálái Nílò Iranlowo (3)**
1. Ṣé o lè ṣiṣẹ́nínú oko/ọgbà rẹ?				
2. Ṣé o lè lọ ibi àwọn àpèjẹ/ayẹyẹ ní agbègbè rẹ bí ìgbáyàwó/ọjọ-ìbí/ìsọmọlórúkọ/ifilọ̀lẹ/etc?				
3. Ṣé o lè lọ ìpàdé ẹgbẹ́bí ti ẹbí/onilé/ayálégbé/ trade/cooperative society meetings?				
4. Ṣe o lè ṣe ojúṣe rẹ̀ní agbègbè rẹ bí. Ètò kólẹ-kódọtí/titun-ọnà-ṣe/**traffic control**/community leadership?				
5.Ṣe o lè lọ ibi ìṣe ajẹmẹsìn?				

6. Ṣe o lè ṣe àwọn ìṣe ajẹmọgbára/ajẹmókun bí ṣíṣe eré ìdárayá yòówù, rínrìn jẹ̀ẹ́ńkẹ́, rínrìn				
7. Báwo ni ìbáṣepọ rẹ pẹ̀lú àwọn ènìyàn ṣe tẹ ọ lọrùn tó/sí?	**Kò tẹmilọrùn (0)**		**Ó Temilorun (1)**	**Ó Temilorun gan-an (2)**

ÌPÍN KẸTA: ÌṢE AJẸMỌ́ṢẸ́-ILÉ/AJẸMẸ́BÍ

Ohun	**Rárá (0)**	**Ṣíṣe pẹ̀lú ìrànlọwọ tó pọ (1)**	**Ṣíṣe pẹ̀lú ìrànlọwọ díẹ (2)**	**Ṣíṣe lálái Nílò ìrànlọwọ (3)**
1 Ṣé o lè tún inú àti àyíká ilé rẹ ṣé bí gbígbálẹ, ṣíṣa ìdọtí àti fífọ/nínu ilẹ?				
2 Ṣé o lè se oúnjẹ fún ẹbí rẹ tàbí ṣe àwọn iṣẹ ilé pẹpẹẹpẹ bí pípàárọ bọọbù/títan ẹrọ amúnáwá?				
3 Ṣé o lè tọjú àyíká ibi tí o ti dáná àti àwọn ohun elò ìdáná? Ṣé o lè fọ ọkọ̀rẹ?				
4 Ṣé o lè fọ àwọn aṣọ?				
5 Ṣé o lè sá àwọn aṣọ náà sórí okùn tàbí sa aṣọ rẹ bí o ti ń ṣe tẹlẹ?				
6 Báwo ni ìrísí rẹ láwùjọ ṣe tẹ ọ lọrùn tó?	**Kò tẹmilọrùn (0)**		**Ó tẹmilọrùn (1)**	**Ó tẹmilọrùn gan-an (2)**
7 Báwo ni akitiyan rẹ àti ranni lọwọ nípa agbára ṣe tẹ ọ lọrùn tó?	**Kò tẹmilọrùn (0)**		**Ó tẹmilọrùn (1)**	**Ó tẹmilọrùn gan-an (2)**

ÌPÍN KERIN:
ÌBÁṢEPỌ̀LÁWÙJỌ

Ohun	**Kò tẹmilọrùn (0)**	**Ó tẹmilọrùn (1)**	**Ó tẹmilọrùn gan-an (2)**
1 Báwo ni àbẹ̀wò rẹ sọdọ àwọn ẹlòmìíràn ti tẹ ọ lọrùn tó?			
2 Báwo ni ìrànwọ tí o rí gbà látọdọ ẹbí àti àwọn ọrẹ rẹ ti tẹ ọ lọrùn tó?			
3 Báwo ni akitiyan àti yanju ìṣòro ẹbí àti ọrẹ ṣe tẹ ọ lọrùn tó?			

4 Ǹjẹ́ àwọn ọrẹ àti ẹbí rẹ ń ràn ọ lọwọ nípa ohun ajẹmọrìnrìnàjò?	Rárá (0)	Bẹẹ ni, àmọ ó ṣọwọn (1)	Bẹẹ ni, lẹkọọkan (2)	Bẹẹ ni, lóòrèkóòrè (3)
5 Ṣé o lè rántí àwọn ìṣẹlẹ kan àti ohun tí wọn sọ fún ọ?	Rárá (0)		Ó mọ níwọn (1)	Dáadáa (2)
6 Ṣó o lè ṣe àwọn ìpinnu kan nípa ohun ajẹmọ́ìṣòro ẹbí tàbí lorí ohun tí o fẹ?	Rárá (0)		Ó mọ níwọn (1)	Dáadáa (2)

ÌPÍN KARUN: OJÚṢE AJẸMỌ́ ÌBÁTAN/
ẸBÍ ŃLÁ

Ohun	**Rárá (0)**	**Ṣíṣe pẹlú ìrànlọwọ́ tó pọ̀(1)**	**Ṣíṣe pẹ̀lú ìrànlọwọ́ díẹ̀(2)**	**Ṣíṣe láláì nílò ìrànlọ́wọ́ (3)**
1 Ṣé o lè tọjú àwọn ẹranko ọsìn rẹ (bí o bá ní) b.a fún Ajá, Adìyẹ tàbí Ẹran lóúnjẹ?				
2 Ṣe o lè kọ àwọn ọmọdé ni ẹkọ ajẹmọṣẹ-ilé b.a oúnjẹ ìbílẹ sise, Are mudding with cow dung?				

ÌPÍN KẸFÀ: IṢẸ́ ÀTI ỆKỌ́

Ohun	**Rárá (0)**	**Ṣíṣe pẹlú ìrànlọwọ tó pọ̀ (1)**	**Ṣíṣe pẹlú ìrànlọwọ díẹ̀ (2)**	**Ṣíṣe lálàì Nílò ìrànlọ́wọ́ (3)**
1 Ṣe o ní agbára àti padà sẹ́nu iṣẹ́?				
2 Ṣé o lè lọ ilé-ẹ̀kọ́ tàbí fún àwọn ètò ìrónilágbára mìíràn (pẹ̀lú ẹ̀kọ́ àgbà), kíkọ́ iṣẹ́-ọwọ́, àti àpéròní agbègbè rẹ?				

APPENDIX IX

ÀMÚLÒ ÀSÀ YORÙBÁ TI MÀLÉKÀ GÉGÉ BÍI GBÈDÉKE FÚN ÌGBÀWOLÉ

PADÀ SÍ ÀWÙJO FÚN ÀWON TI WÓN NÍ ÀÌSÀN ROPÁROSÈ

Onímò nípa ìtójú ara yóò ka àwon ohun tí ó níí se pèlú ìbásepò/ìsòkan padà ni agbègbè re (aláìsán tàbí onítore àánú) jòwó dáhùn bi o ti tó àti bí ó ti ye

Léyìn ìfòròwánilénuwò yìí, onímò nípa ìtójú yóò fún o ní èsì nípa ìpadà ìsòkan ti agbègbè re, yóò si bá o sòrò lórí ònà àbáyo fún imúpadà bò sípò.

ÌPELE ÀKÓKÓ: ADL ÀTI ÌTÓJÚ ARA

Èlò	Ìbéèrè	Rárá(0)	Ó seése pèlú ìrànwó ńlá(1)	O seése pèlú ìrànwó ránpé(2)	O seése láì nílò ìrànlówó(3)
1.	Ǹjé o le dìde láti orí ibùsùn re ni òwúrò yìí				
2.	Ǹjé o le dá omi sí inú ládugbó/bàáfù tàbí Garawa				
3.	Ǹjé ó seése fún o láti we ara re				
4.	Ǹjé o ni agbára láti se ara re ní òsó				
5.	Ǹjé o le jeun tàbí mu fúnra re				
6.	Ǹjé o le mu omi látiú Ife				
7.	Ǹjé o le rìn yíká agbègbè yálà ibi tí ko gún tàbí Òkè				

8.	Se o le rìn kiri àyíká ilé re				
9.	Ǹjé o le rin yíká ibùgbé/àyíká tàbí àgbàlá re				
10	Sé o ní àǹfàní láti rìn kiri àdúgbò re				
11	Ǹjé ó seése fún o láti pon omi láti inú kànga/odò tàbí láti enu èro ìgbàlódé				
12	Ǹjé o ní okun láti gbé erù tó tóòrìn/wúwo, àpeere bíi, àpò omi inú òrá kan/kégì ológún jálá omi tàbí epo kan/kíréètì otí elérìndòdò onígò kan				
13	Ǹjé o ní okun láti lo gba òògùn re ní ilé ìwòsàn fún ìmúpadà bò sípò/ìtójú àti ìrànlówó tó níí se pèlú òògùn				
14	Ǹjé o tún le lo ohun ìrìnsè gégé bí o ti máa ń lòó kí o tó ní ìpèníjà.				
15	Ǹjé o ni agbára láti se isé fún ìgbádùn ara re, tàbí ìsinmi, bíi gbígbó èro asòrò mágbèsì, wíwo èro móhùnmáwòrán, tàbí kíka ìwé ìròyìn aláwòrán/ ìwé ìròyìn pónbélé				
16	Ǹjé o ní agbára láti bó síta lo wo sinimó, ra ojà kiri àárin ìlú/kówòórìn jáde pèlú àwon				

ÌPELE KEJÌ: ÌBÁSEPÒ LÁWÙJO ÀTI ÌBÁTAN

Èlò	Ìbéèrè	Rárá(0)	Ó seése Pèlú iranwo nla (1)	O seés epèlú ìrànwó ránpé (2)	O seése láì nílò ránlówó (3)
1.	Ǹjé oní agbára láti rìn nínú oko re tàbí lórí papa				
2.	Ǹjé o ní okun láti lo sí ibi síse/ìnáwó ìgbéyàwó/oj lè/ìnáw óbìí/ìkó mojáde/ìfiló ó àjo ka ni agbègbè re				
3.	Ǹjé o ni àǹfààní láti lo sí ibi àwon ìpàdé elégbéjegbé àti àwon ìpàdé mìíran bíi ti mòlébí, onílé àti ayálégbé onísòwò, egbé alájesékùn				
4.	Ǹjé o ní àǹfààní láti e s ojúse tàbí èto re ni àdúgbò bíi: kíkópa nínú kólè kódòtí./títún ojú pópó se/títè lé àse iná ojú pópó				
5.	Ǹjé o ni oore-òfé láti lo sí ibi síse àwon Elésìn				
6.	Ǹjé o dáǹtó láti se eré ìdárayá bíi; eré orí pápá, ìrìn, ìrìn líle, eré sísá ti kò ga ju ara lo/ogbà títúnse				
7.	Báwo ni àjosepò re pèlú àwon ènìyàn mìíràn se té o lórùn tó	Kò témi Lórùn		Ó témilórùn	Ó témilórùn Dáadáa

ÌPELE KETA: OJÚSE ÀTI ÌRÍSÍ ÌDÍLÉ

Èlò	**Ìbéèrè**	**Rárá(0)**	**Ó seése pèlú ìrànwó ńlá(1)**	**Ó seése pèlú ìrànwó Ránpé(2)**	**Ó seés eláìsí Ìrànwó(3)**
1.	Ǹjé o ní àǹfàání láti e se ìmó tótó ilé àti àyíká re, bíi; ilè gbígbá, sísa àwon ìdòtí tàbí ilè fífò				
2.	Ǹjé o lè dáná oúnje fún ebí re tàbí se àwo n àtúnse pépèpé nínú ilé bíi: pípàárò gílòbùn iná M òn àm ó ná, títan èro Amúnáwá				
3.	Ǹjé ó seése fún o láti fo àyíká àti àwon ohun èlò ilé ìdánà. Ǹjé o le fo okò ayókélé re				
4.	Ǹjé o le fo aso?				
5.	Ǹjé o le sá àwon aso re sí orí okùn, ǹjé o le sá won gbe gégé bí o ti máa ń se télè				
6.	Báwo ni ìrísí re ni àwùjo se té o lórùn tó	Kò témi Lórùn	Ó témilórùn	Ó témilórùn dáadáa	
7.	Báwo ni agbára re láti se ìrànlówó ojúkorojú fún èníyàn se té o lórùn tó	Kò témi Lórùn	Ó témilórùn	Ó témilórùn dáadáa	

ÌPELE KERIN: ÌBÁSEPÒ LÁWÙJO

Èlò	**Ìbéèrè**	**Kò témi lórùn** (1)	**Ó témilórùn(2)**	**Ó témilórùn dáadáa(3)**	
1.	Báwo ni síse àbè.wò sí àwon ènìyàn àti síse àbèwò won sí o se té o lórù tó				
2.	Báwo ni ìrànwó tí ò n rí gbà láti òdò àwon òré àti ebí re se té o lórùn tó				
3.	Báwo ni ipá re nípa wíwá ojútùú si ìsòro ìdílé àti ti àwon òré se té o lórùn tó.				
4.	Ǹjé àwon òré àti mòlébí re ń ràn ó lówó nípa àwon ohun tí o nílò fún ìrìn-àjò re	Béèkó	Béèni sùgbón kìí gbogbo ìgbà	Béèni, Nígbà mìíràn	Béèni, ni gbogbo ìgbà
5.	Ǹjé ó seése fún o láti rántí àwon ohun tí o ní láti se	Kò seése Rárá	Ó seése dé gbèdéke kan	Ó seése dáadáa	
6.	Ǹjé o seése fún o láti se ìpinnu ohun tí o máa se nípa ayé re tàbí nípa ohun tí ó jemó ìdílé re	Kò seése Rárá	Ó seése dé gbèdéke kan	Ó seése dáadáa	

ÌPELE KARÙN-ÚN: OJÚSE MÒLÉBÍ LÁPAPÒ

Èlò	**Ìbéèrè**	**Rárá(0)**	**Ó seése pèlú ìrànwó ńlá(1)**	**O seése pèlú ìrànwó ránpé(2)**	**O seése lái nílò ìrànlówó(3)**
1.	Ǹjé ó seés efún o láti tójú àwon ohun òsìn re (bí o bá ní) àpeere: bó àwon ajá tàbí àgùntàn/ pèlú àwon ewúré, Ǹjé o si le fún wara won pèlú.				
2.	Ǹjé o ni àǹfàání láti ko àwon ògo weere ni ojúse won nínú ilé bíi àsà, inádimdí ilè wa àti fífi bóto kun ilé.				

ÌPELE KEFÀ: ISÉ ÀTI ÈKÓ

Èlò	**Ìbéèrè**	**Rárá(0)**	**Ó seése pèlú ìrànwó ńlá(1)**	**O seése pèlú ìrànwó ránpé(2)**	**O seése lái nílò ìrànlówó(3)**
1.	Ǹjé ó seése fún láti padà si enu isé (yálá isé owó tàbí àkànse)				
2.	Ǹjé oseése fún o láti lo ilé ìwé tàbí ètò ìkó sé (pèlú èkó àgbà, ìdánilékòó nípa isé owó, àpérò tí wón se yálà ni agbègbè re tàbí ni ibòmíràn?				

APPENDIX X

ẸDÀ YORÙBÁ TI ÌGBÉLÉWỌN ÈTÒ ÌPADÀBỌ́SÍPÒ SÁWÙJỌ FÚN AWON TI WÓN NÍ AÌSÀN ROPÁROSÈTI MALEKA (CONCENSUS TRANSLATION)

Tẹ́rápíìsì yóò ka gbogbo ohun tó ní í ṣe pẹ̀lú ètò ìpadàbọ́sípò ajẹmáwùjọ sí i yín, jọ̀wọ́, dáhùn bó ti tọ́.

Lẹ́yìn ìfọ̀rọ̀wánilẹ́nuwò yìí, Tẹ́rápíìsì yóò fi àbájáde tó ní í ṣe pẹ̀lú ìpadàbọ́sípò ajẹmáwùjọ tó ọ létí, yóò sì jíròrò pẹ̀lú rẹ lórí ọ̀nà àbáyọ tó ní í ṣe pẹ̀lú ìpadàbọ́sípò rẹ.

ÌPÍN KÌÍNÍ: ÌTỌ́JÚ-ARA-ẸNI

Ìbéèrè	**Rárá (0)**	**Ṣíṣe pẹ̀lú ìrànlọ́wọ́ tó pọ̀ (1)**	**Ṣíṣe pẹ̀lú ìrànlọ́wọ́ díẹ̀ (2)**	**Ṣíṣe láì nílò ìrànlọ́wọ́ (3)**
1. Ṣé o lè dìde kúrò lórí ìbùsùn láàárọ̀?				
2 Ṣé o lè da omi sínú kẹ́tù/bàsíà tàbí garawa?				
3 Ṣé o lè dá ara rẹ̀ wẹ̀?				
4 Ṣé o lè dá múra/wọṣọ?				
5 Ṣé o lè dá jẹun/mu omi fúnra rẹ?				
6 Ṣé o lè mu nǹkan láti inú ife?				
7 Ṣé o lè rìn gba ibi tó rí gbágungbàgun tàbí tí ó ga?				
8 Ṣé o lè rìn káàkiri nínú ilé rẹ̀?				
9 Ṣé o lè rìn káàkiri ní àgbàlá?				
10 Ṣé o lè rìn káàkiri ní àdúgbò rẹ?				

11 Ṣé o lè pọn omi láti inú kànnga/odò/ omi ẹ̀rọ àdúgbò				
12 Ṣé o lè gbé (àwọn) nǹkan wuwo b.a báàgì/àpò omi inú ọ̀rá, ogún lítà omi/epo, kíréètì mínírà kan?				
13 Ṣé o lè lọ sílé ìwòsàn/ibi ìtọ́jú láti gba òògùn tàbí fún ìpàdàsípò/ìtọ́jú?				
14 Ṣé o lè lo ìlànà lílọ káàkiri pẹ̀lú ọkọ̀ tí o máa ń lò tẹ́lẹ̀ ṣáájú àìsàn ọpárọsẹ̀ yìí?				
15 Ṣé o lè ṣe àwọn ìṣe ajẹmáfẹ́ bí i gbígbọ́ ètò lórí rédíò, wíwo tẹlifíṣàn tàbí kíka ìwé/ìwé ìròyìn.				
16 Ṣé o lè jáde láti lọ wo sinimá/ra ọjà kiri àárín ìlú/jáde pẹ̀lú àwọn ọ̀rẹ́ tàbí ẹbí, wo eré bọ́ọ̀lù ní gbọ̀gàn ìwobọ́ọ̀lù/pápá eré ìdárayá?				

ÌPÍN KEJÌ: ÌBÁṢEPỌ̀ LÀWÙJỌ

Ìbéèrè	**Rárá (0)**	**Ṣíṣe pẹ̀lú ìrànlọ́wọ́ tó pọ̀ (1)**	**Ṣíṣe pẹ̀lú ìrànlọ́wọ́ díẹ̀ (2)**	**Ṣíṣe láì nílò ìrànlọ́wọ́ (3)**	
1 Ṣé o lè ṣiṣẹ́ oko nínú ọgbà rẹ?					
2 Ṣé o lè lọ ibi àwọn àpèjẹ/ayẹyẹ ní agbègbè rẹ bí ìgbéyàwó/ọjọ́-ìbí/ìsọmọlórúkọ/ifilọ́lẹ̀/etc?					
3 Ṣé o lè lọ ìpàdé ẹgbẹ́ bí ti ẹbí/onilé/ayálégbé/oníṣòwò/ẹgbẹ́ alájẹṣẹ́kùn?					
4 Ṣe o lè ṣe ojúṣe rẹ̀ ní agbègbè rẹ bí. Èto kólẹ̀-kódọ̀tí/titun-ọ̀nà-ṣe/dídarí ọkọ̀ lójú titi/ dídarí ètò àdúgbò?					
5 Ṣe o lè lọ ibi ìṣe ajẹmẹ́sìn?					
6 Ṣe o lè ṣe àwọn ìṣe ajẹmọ́gbára/ajẹmókun bí ṣíṣe eré ìdárayá yòówù, rínrìn jẹ̀lẹ́ńkẹ́, rínrìn kíákíá, mímójútó ọgbà?					
7 Báwo ni àjọṣepọ̀ rẹ pẹ̀lú àwọn ènìyàn ṣe tẹ́ ọ lọ́rùn tó/sí?	**Kò tẹ́milọ́rùn (0)**		**Ó tẹ́milọ́rùn (1)**	**Ó tẹ́milọ́rùn gan-an (2)**	

ÌPÍN KẸTA: ÌṢE AJẸMỌ́ṢẸ́-ILÉ/AJẸMẸ́BÍ

Ìbéèrè	**Rárá (0)**	**Ṣíṣe pẹ̀lú ìrànlọ́wọ́ tó pọ̀ (1)**	**Ṣíṣe pẹ̀lú ìrànlọ́wọ́ díẹ̀ (2)**	**Ṣíṣe lálái nílò ìrànlọ́wọ́ (3)**
1 Ṣé o lè tún inú àti àyíká ilé rẹ ṣé bí gbígbálẹ̀, ṣíṣa ìdọ̀tí àti fífọ ilẹ̀ ilẹ̀?	107			
2 Ṣé o lè se oúnjẹ fún ẹbí rẹ tàbí ṣe àwọn iṣẹ́ ilé pẹ́pẹ̀ẹ̀pẹ́ bí pípàárọ̀ bọ́ọ̀bù/títan ẹ̀rọ amúnáwá?				
3 Ṣé o lè tọ́jú àyíká ibi tí o ti dáná àti àwọn ohun elò ìdáná? Ṣé o lè fọ ọkọ̀ rẹ?				
4 Ṣé o lè fọ aṣọ?				
5 Ṣé o lè sá àwọn aṣọ náà sórí okùn tàbí sa aṣọ rẹ bí o ti ń ṣe tẹ́lẹ̀?				
6 Báwo ni ìrísí rẹ láwùjọ ṣe tẹ́ ọ lọ́rùn tó?	**Kò tẹ́milọ́rùn (0)**		**Ó tẹ́milọ́rùn (1)**	**Ó tẹ́milọ́rùn gan-an (2)**
7 Báwo ni agbara rẹ láti ṣe ìrànlọ́wọ́ ojúkorojú fún ènìyàn ṣe tẹ́ ọ lọ́rùn tó?	**Kò tẹ́milọ́rùn (0)**		**Ó tẹ́milọ́rùn (1)**	**Ó tẹ́milọ́rùn gan-an (2)**

ÌPÍN KERIN: ÌBÁṢEPỌ̀ LÁWÙJỌ

Ìbéèrè	Kò tẹ́milọ́rùn (0)	Ó tẹ́milọ́rùn (1)	Ó tẹ́milọ́rùn gan-an (2)
1 Báwo ni ṣíṣe àbẹ̀wò rẹ sọ́dọ̀ àwọn ẹlòmìíràn àti àbẹ̀wò wọn ti tẹ́ ọ lọ́rùn tó?			
2 Báwo ni ìrànwọ́ tí o rí gbà látọ̀dọ̀ ẹbí àti àwọn ọ̀rẹ́ rẹ ti tẹ́ ọ lọ́rùn tó?			
3 Báwo ni akitiyan àti yanju ìṣòro ẹbí àti ọ̀rẹ́ ṣe tẹ́ ọ lọ́rùn tó?			

4 Ǹjẹ́ àwọn ọ̀rẹ́ àti ẹbí rẹ ń ràn ọ́ lọ́wọ́ nípa ohun ajẹmọ́rìnàjò?	Rárá (0)	l 108 àmọ́ ó ṣọwọn (1)	Bẹ́ẹ̀ ni, lẹ́kọ̀ọ̀kan (2)	Bẹ́ẹ̀ ni, ni gbogbo ìgbà (3)

5 Ṣé o lè rántí àwọn ìṣẹ̀lẹ̀ kan àti ohun tí wọ́n sọ fún ọ?	Rárá (0)	Ó mọ níwọ̀n (1)	Dáadáa (2)
6 Ṣé ó ṣeé ṣe fún ọ láti ṣe ìpinnu ohun tí o máa ṣe nípa ayé rẹ tàbí nípa ohun tí ó jẹmọ́ idile rẹ?	Rárá (0)	Ó mọ níwọ̀n (1)	Dáadáa (2)

ÌPÍN KARUN: OJÚṢE AJẸMỌ́ ẸBÍ LÁPAPỌ̀

Ìbéèrè	Rárá (0)	Ṣíṣe pẹ̀lú ìrànlọ́wọ́ tó pọ̀ (1)	Ṣíṣe pẹ̀lú ìrànlọ́wọ́ díẹ̀ (2)	Ṣíṣe lálái nílò ìrànlọ́wọ́ (3)
1 Ṣé o lè tójú àwọn ẹranko ọ̀sìn rẹ (bí o bá ní) b.a fún Ajá, Adìyẹ tàbí Ẹran lóúnjẹ?				
2 Ṣe o lè kọ́ àwọn ọmọdé ni ẹ̀kọ́ ajẹmọ́ṣẹ́-ilé b.a oúnjẹ ìbílẹ̀ sise?				

ÌPÍN KẸFÀ: IṢẸ́ ÀTI ẸKỌ́

Ìbéèrè	**Rárá (0)**	**Ṣíṣe pẹ̀lú ìrànlọ́wọ́ tó pọ̀ (1)**	**Ṣíṣe pẹ̀lú ìrànlọ́wọ́ díẹ̀ (2)**	**Ṣíṣe lálái nílò ìrànlọ́wọ́ (3)**
1 Ṣé ó ṣeé ṣe fún ẹ láti padà sẹ́nu iṣẹ́				
2 Ṣé o lè lọ ilé-ẹ̀kọ́ tàbí fún àwọn ètò ìrónilágbára mìíràn (pẹ̀lú ẹ̀kọ́ àgbà), kíkọ́ iṣẹ́-ọwọ́, àti àpérò yálà ní agbègbè rẹ tàbí ibòmíìràn?				

APPENDIX XI

Pre-final version of Yoruba MSCRIM

ÌGBÉLÉWỌ̀N ÈTÒ ÌPADÀBỌ́SÍPÒ AJẸMÁWÙJỌ TI MALEKA FUN AWON ALÁÌSÀN RỌPÁRỌSẸ̀ NI ÈDÀ YORÙBÁ (ÈDÀ TI ÌLÚ ŃLÁ).

Tẹ́rápíìsì yóò ka gbogbo ohun tó ní í ṣe pẹ̀lú ètò ìpadàbọ́sípò ajẹmáwùjọ sí i yín, jọ̀wọ́, dáhùn bó titọ́.

Lẹ́yìn ìfọ̀rọ̀wánilẹ́nuwò yìí, Tẹ́rápíìsì yóò fi àbájáde tó ní í ṣe pẹ̀lú ìpadàbọ́sípò sáwùjọ tó ọ létí, yóò sì jíròrò pẹ̀lú rẹ lórí ọ̀nà àbáyọ tó ní í ṣe pẹ̀lú ìpadàbọ́sípò

ÌPÍN KÌÍNÍ: ÌTỌ́JÚ-ARA-ẸNI ÀTI ÌṢE OJOOJÚMỌ́

Ìbéèrè	**Rárá (0)**	**Ṣíṣe pẹ̀lú ìrànlọ́wọ́ tó pọ̀ (1)**	**Ṣíṣe pẹ̀lú ìrànlọ́wọ́ díẹ̀ (2)**	**Ṣíṣe láì nílò ìrànlọ́wọ́ (3)**
1. Ṣé o lè dìde kúrò lórí ìbùsùn rẹ̀ láàárọ̀?				
2 Ṣé o lè da omi sínú kẹ́tù/bàsíà tàbí garawa?				
3 Ṣé o lè dá ara rẹ̀ wẹ̀?				
4 Ṣé o lè dá múra/wọṣọ?				
5 Ṣé o lè dá jẹun/mu omi fúnra rẹ?				
6 Ṣé o lè mu nǹkan láti inú ife?				
7 Ṣé o lè rìn gba ibi tó rí gbágungbàgun tàbí tí ó ga?				
8 Ṣé o lè rìn káàkiri nínú ilé rẹ̀?				
9 Ṣé o lè rìn káàkiri ní àgbàlá?				
10 Ṣé o lè rìn káàkiri ní àdúgbò rẹ?				

11 Ṣé o lè pọn omi láti inú kànǹga/odò/ omi ẹ̀rọ àdúgbò				
12 Ṣé o lè gbé (àwọn) nǹkan wuwo b.a báàgì/àpò omi inú ọ̀rá, ogún lítà omi/epo, kíréètì mínírà kan?				
13 Ṣé o lè lọ sílé ìwòsàn/ibi ìtójú láti gba òògùn tàbí fún ìpàdàsípò/ìtọ́jú?				
14 Ṣé o lè lo ìlànà líloò káàkiri pẹ̀lú ọkọ̀ tí o máa ń lò tẹ́lẹ̀ ṣáájú àìsàn ọpáọsẹ̀ yìí?				
15 Ṣé o lè ṣe àwọn ìṣe ajẹmáfẹ́ bí i gbígbọ́ ètò lórí rédíò, wíwo tẹlifíṣàn tàbí kíka ìwé/ìwé ìròyìn.				
16 Ṣé o lè jáde láti lọ wo sinimá/ra ọjà kiri àárín ìlú/jáde pẹ̀lú àwọn ọ̀rẹ́ tàbí ẹbí, wo eré bọ́ọ̀lù ní gbọ̀gàn ìwobọ́ọ̀lù/pápá eré ìdárayá?				

ÌPÍN KEJÌ: ÌBÁṢEPỌ̀ LÀWÙJỌ

Ìbéèrè	**Rárá (0)**	**Ṣíṣe pẹ̀lú ìrànlọ́wọ́ tó pọ̀ (1)**	**Ṣíṣe pẹ̀lú ìrànlọ́wọ́ díẹ̀ (2)**	**Ṣíṣe láì nílò ìrànlọ́wọ́ (3)**
1 Ṣé o lè ṣiṣẹ́ oko nínú ọgbà rẹ?				
2 Ṣé o lè lọ ibi àwọn àpèjẹ/ayẹyẹ ní agbègbè rẹ bí ìgbéyàwó/ọjọ́-ìbí/ìsọmọlórúkọ/ìfilọ́ọ́lẹ̀/etc?				
3 Ṣé o lè lọ ìpàdé ẹgbẹ́ bí ti ẹbí/onilé/ayálégbé/oníṣòwò/ẹgbẹ́ alájẹṣẹ́kùn?				
4 Ṣe o lè ṣe ojúṣe rẹ̀ ní agbègbè rẹ bí. Ètò kólẹ̀-kódọ̀tí/titun-ọ̀nà-ṣe/dídarí ọkọ̀ lójú titi/ dídarí ètò àdúgbò?				
5 Ṣe o lè lọ ibi ìṣe ajẹmẹ́sìn?				
6 Ṣe o lè ṣe àwọn ìṣe ajẹmọ́gbára/ajẹmókun bí ṣíṣe eré ìdárayá yòówù, rínrìn jẹ̀lẹ́ńkẹ́, rínrìn kíákiá, mímójútó ọgbà?				
7 Báwo ni àjọṣepọ̀ rẹ pẹ̀lú àwọn ènìyàn ṣe tẹ́ ọ lọ́rùn tó/sí	**Kò tẹ́milọ́rùn (0)**		**Ó tẹ́milọ́rùn (1)**	**Ó tẹ́milọ́rùn gan-an (2)**

ÌPÍN KẸTA: ÌṢE AJẸMỌ́ṢẸ́-ILÉ/AJẸMẸ́BÍ

Ìbéèrè	**Rárá (0)**	**Ṣíṣe pẹ̀lú ìrànlọ́wọ́ tó pọ̀ (1)**	**Ṣíṣe pẹ̀lú ìrànlọ́wọ́ díẹ̀ (2)**	**Ṣíṣe lálái nílò ìrànlọ́wọ́ (3)**
1 Ṣé o lè tún inú àti àyíká ilé rẹ ṣé bí gbígbálẹ̀, ṣíṣa ìdọ̀tí àti fífọ ilẹ̀ ilẹ̀?				
2 Ṣé o lè se oúnjẹ fún ẹbí rẹ tàbí ṣe àwọn iṣẹ́ ilé pẹ́pẹ́ẹ̀pẹ́ bí pípàárọ́ bọ́ọ̀bù/títan ẹ̀rọ amúnáwá?				
3 Ṣé o lè tọ́jú àyíká ibi tí o ti dáná àti àwọn ohun elò ìdáná? Ṣé o lè fọ ọkọ̀ rẹ?				
4 Ṣé o lè fọ aṣọ?				
5 Ṣé o lè sá àwọn aṣọ náà sórí okùn tàbí sa aṣọ rẹ bí o ti ń ṣe tẹ́lẹ̀?				
6 Báwo ni ìrísí rẹ láwùjọ ṣe tẹ́ ọ lọ́rùn tó?	**Kò tẹ́milọ́rùn (0)**		**Ó tẹ́milọ́rùn (1)**	**Ó tẹ́milọ́rùn gan-an (2)**
7 Báwo ni agbara rẹ láti ṣe ìrànlọ́wọ́ ojúkorojú fún ènìyàn ṣe tẹ́ ọ lọ́rùn tó?	**Kò tẹ́milọ́rùn (0)**		**Ó tẹ́milọ́rùn (1)**	**Ó tẹ́milọ́rùn gan-an (2)**

ÌPÍN KERIN: ÌBÁṢEPỌ̀ LÁWÙJỌ

Ìbéèrè	**Kò tẹ́milọ́rùn (0)**	**Ó tẹ́milọ́rùn (1)**	**Ó tẹ́milọ́rùn gan-an (2)**
1 Báwo ni ṣíṣe àbẹ̀wò rẹ sọ́dọ̀ àwọn ẹlòmìíràn àti àbẹ̀wò wọn ti tẹ́ ọ lọ́rùn tó?			
2 Báwo ni ìrànwọ́ tí o rí gbà látọ̀dọ̀ ẹbí àti àwọn ọ̀rẹ́ rẹ ti tẹ́ ọ lọ́rùn tó?			
3 Báwo ni akitiyan àti yanju ìṣòro ẹbí àti ọ̀rẹ́ ṣe tẹ́ ọ lọ́rùn tó?			

4 Ǹjẹ́ àwọn ọ̀rẹ́ àti ẹbí rẹ ń ràn ọ́ lọ́wọ́ nípa ohun ajẹmọ́rìnàjò?	Rárá (0)	Bẹ́ẹ̀ ni, àmọ́ ó ṣọ̀wọ́n (1)	Bẹ́ẹ̀ ni, lẹ́kọ̀ọ̀kan (2)	Bẹ́ẹ̀ ni, ni gbogbo ìgbà (3)

5 Ṣé o lè rántí àwọn ìṣẹ̀lẹ̀ kan àti ohun tí wọ́n sọ fún ọ?	Rárá (0)	Ó mọ níwọ̀n (1)	Dáadáa (2)
6 Ṣé ó ṣeé ṣe fún ọ láti ṣe ìpinnu ohun tí o máa ṣe nípa ayé rẹ tàbí nípa ohun tí ó jẹmọ́ idile rẹ?	Rárá (0)	Ó mọ níwọ̀n (1)	Dáadáa (2)

ÌPÍN KARUN: OJÚṢE AJẸMỌ́ ẸBÍ LÁPAPỌ̀

Ìbéèrè	**Rárá (0)**	**Ṣíṣe pẹ̀lú ìrànlọ́wọ́ tó pọ̀ (1)**	**Ṣíṣe pẹ̀lú ìrànlọ́wọ́ díẹ̀ (2)**	**Ṣíṣe lálái nílò ìrànlọ́wọ́ (3)**
1 Ṣé o lè tọ́jú àwọn ẹranko ọ̀sìn rẹ (bí o bá ní) b.a fún Ajá, Adìyẹ tàbí Ẹran lóúnjẹ?				
2 Ṣe o lè kọ́ àwọn ọmọdé ni ẹ̀kọ́ ajẹmọ́ṣẹ́-ilé b.a oúnjẹ ìbílẹ̀ sísè?				

ÌPÍN KẸFÀ: IṢẸ́ ÀTI Ẹ̀KỌ́

Ìbéèrè	**Rárá (0)**	**Ṣíṣe pẹ̀lú ìrànlọ́wọ́ tó pọ̀ (1)**	**Ṣíṣe pẹ̀lú ìrànlọ́wọ́ díẹ̀ (2)**	**Ṣíṣe lálái nílò ìrànlọ́wọ́ (3)**
1 Ṣé ó ṣeé ṣe fún ẹ láti padà sẹ́nu iṣẹ́?			0	
2 Ṣé o lè lọ ilé-ẹ̀kọ́ tàbí lọ fún àwọn ètò ìrónilágbára mìíràn (pẹ̀lú ẹ̀kọ́ àgbà), kíkọ́ iṣẹ́-ọwọ́, àti àpérò yálà ní agbègbè rẹ tàbí ibòmíìràn?				

APPENDIX XII

Final version of Yoruba MSCRIM

ÌGBÉLÉWỌ̀N ÈTÒ ÌPADÀBỌ́SÍPÒ AJẸMÁWÙJỌ TI MALEKA FUN AWON ALÁÌSÀN RỌPÁRỌSẸ̀ NI ÈDÀ YORÙBÁ (ÈDÀ TI ÌLÚ ŃLÁ).

Tẹ́rápíìsì yóò ka gbogbo ohun tó ní í ṣe pẹ̀lú ètò ìpadàbọ́sípò ajẹmáwùjọ sí i yín, jọ̀wọ́, dáhùn bó titọ́.

Lẹ́yìn ìfọ̀rọ̀wánilẹ́nuwò yìí, Tẹ́rápíìsì yóò fi àbájáde tó ní í ṣe pẹ̀lú ìpadàbọ́sípò sáwùjọ tó ọ létí, yóò sì jíròrò pẹ̀lú rẹ lórí ọ̀nà àbáyọ tó ní í ṣe pẹ̀lú ìpadàbọ́sípò

ÌPÍN KÌÍNÍ: ÌTỌ́JÚ-ARA-ẸNI ÀTI ÌṢE OJOOJÚMỌ́

Ìbéèrè	**Rárá (0)**	**Ṣíṣe pẹ̀lú ìrànlọ́wọ́ tó pọ̀ (1)**	**Ṣíṣe pẹ̀lú ìrànlọ́wọ́ díẹ̀ (2)**	**Ṣíṣe láì nílò ìrànlọ́wọ́ (3)**
1. Ṣé o lè dìde kúrò lórí ìbùsùn rẹ̀ láàárọ̀?				
2 Ṣé o lè da omi sínú kẹ́tù/bàsíà tàbí garawa?				
3 Ṣé o lè dá ara rẹ̀ wẹ̀?				
4 Ṣé o lè dá múra/wọṣọ?				
5 Ṣé o lè dá jẹun/mu omi fúnra rẹ?				
6 Ṣé o lè mu nǹkan láti inú ife?				
7 Ṣé o lè rìn gba ibi tó rí gbágungbàgun tàbí tí ó ga?				
8 Ṣé o lè rìn káàkiri nínú ilé rẹ̀?				
9 Ṣé o lè rìn káàkiri ní àgbàlá?				
10 Ṣé o lè rìn káàkiri ní àdúgbò rẹ?				

11 Ṣé o lè pọn omi láti inú kànǹga/odò/ omi ẹ̀rọ àdúgbò				
12 Ṣé o lè gbé (àwọn) nǹkan wuwo b.a báàgì/àpò omi inú ọ̀rá, ogún lítà omi/epo, kíréètì mínírà kan?				
13 Ṣé o lè lọ sílé ìwòsàn/ibi ìtójú láti gba òògùn tàbí fún ìpàdàsípò/ìtọ́jú?				
14 Ṣé o lè lo ìlànà líloò káàkiri pẹ̀lú ọkọ̀ tí o máa ń lò tẹ́lẹ̀ ṣáájú àìsàn ọpáọsẹ̀ yìí?				
15 Ṣé o lè ṣe àwọn ìṣe ajẹmáfẹ́ bí i gbígbọ́ ètò lórí rédíò, wíwo tẹlifíṣàn tàbí kíka ìwé/ìwé ìròyìn.				
16 Ṣé o lè jáde láti lọ wo sinimá/ra ọjà kiri àárín ìlú/jáde pẹ̀lú àwọn ọ̀rẹ́ tàbí ẹbí, wo eré bọ́ọ̀lù ní gbọ̀gàn ìwobọ́ọ̀lù/pápá eré ìdárayá?				

ÌPÍN KEJÌ: ÌBÁṢEPỌ̀ LÀWÙJỌ

Ìbéèrè	**Rárá (0)**	**Ṣíṣe pẹ̀lú ìrànlọ́wọ́ tó pọ̀ (1)**	**Ṣíṣe pẹ̀lú ìrànlọ́wọ́ díẹ̀ (2)**	**Ṣíṣe láì nílò ìrànlọ́wọ́ (3)**	Nko ni
1 Ṣé o lè ṣiṣẹ́ oko nínú ọgbà rẹ?					
2 Ṣé o lè lọ ibi àwọn àpèjẹ/ayẹyẹ ní agbègbè rẹ bí ìgbéyàwó/ọjọ́-ìbí/ìsọmọlórúkọ/ìfilọ́ọ́lẹ̀/etc?					
3 Ṣé o lè lọ ìpàdé ẹgbẹ́ bí ti ẹbí/onilé/ayálégbé/oníṣòwò/ẹgbẹ́ alájẹṣẹ́kùn?					
4 Ṣe o lè ṣe ojúṣe rẹ̀ ní agbègbè rẹ bí. Ètò kólẹ̀-kódọ̀tí/titun-ọ̀nà-ṣe/dídarí ọkọ̀ lójú titi/ dídarí ètò àdúgbò?					
5 Ṣe o lè lọ ibi ìṣe ajẹmẹ́sìn?					
6 Ṣe o lè ṣe àwọn ìṣe ajẹmọ́gbára/ajẹmókun bí ṣíṣe eré ìdárayá yòówù, rínrìn jẹ̀lẹ́ńkẹ́, rínrìn kíákiá, mímójútó ọgbà?					
7 Báwo ni àjọṣepọ̀ rẹ pẹ̀lú àwọn ènìyàn ṣe tẹ́ ọ lọ́rùn tó/sí	**Kò tẹ́milọ́rùn (0)**		**Ó tẹ́milọ́rùn (1)**	**Ó tẹ́milọ́rùn gan-an (2)**	

ÌPÍN KẸTA: ÌṢE AJẸMỌ́ṢẸ́-ILÉ/AJẸMẸ́BÍ

Ìbéèrè	**Rárá (0)**	**Ṣíṣe pẹ̀lú ìrànlọ́wọ́ tó pọ̀ (1)**	**Ṣíṣe pẹ̀lú ìrànlọ́wọ́ díẹ̀ (2)**	**Ṣíṣe lálàì nílò ìrànlọ́wọ́ (3)**
1 Ṣé o lè tún inú àti àyíká ilé rẹ ṣe bí gbígbálẹ̀, ṣíṣa ìdọ̀tí àti fífọ ilẹ̀ ilẹ̀?				
2 Ṣé o lè se oúnjẹ fún ẹbí rẹ tàbí ṣe àwọn iṣẹ́ ilé pẹ́pẹ́ẹ̀pẹ́ bí pípàárọ́ bọ́ọ̀bù/títan ẹ̀rọ amúnáwá?				
3 Ṣé o lè tọ́jú àyíká ibi tí o ti dáná àti àwọn ohun elò ìdáná? Ṣé o lè fọ ọkọ̀ rẹ?				
4 Ṣé o lè fọ aṣọ?				
5 Ṣé o lè sá àwọn aṣọ náà sórí okùn tàbí sa aṣọ rẹ bí o ti ń ṣe tẹ́lẹ̀?				
6 Báwo ni ìrísí rẹ láwùjọ ṣe tẹ́ ọ lọ́rùn tó?	**Kò tẹ́milọ́rùn (0)**		**Ó tẹ́milọ́rùn (1)**	**Ó tẹ́milọ́rùn gan-an (2)**
7 Báwo ni agbara rẹ láti ṣe ìrànlọ́wọ́ ojúkorojú fún ènìyàn ṣe tẹ́ ọ lọ́rùn tó?	**Kò tẹ́milọ́rùn (0)**		**Ó tẹ́milọ́rùn (1)**	**Ó tẹ́milọ́rùn gan-an (2)**

ÌPÍN KERIN: ÌBÁṢEPỌ̀ LÁWÙJỌ

Ìbéèrè	**Kò tẹ́milọ́rùn (0)**	**Ó tẹ́milọ́rùn (1)**	**Ó tẹ́milọ́rùn gan-an (2)**
1 Báwo ni ṣíṣe àbẹ̀wò rẹ sọ́dọ̀ àwọn ẹlòmìíràn àti àbẹ̀wò wọn ti tẹ́ ọ lọ́rùn tó?			
2 Báwo ni ìrànwọ́ tí o rí gbà látọ̀dọ̀ ẹbí àti àwọn ọ̀rẹ́ rẹ ti tẹ́ ọ lọ́rùn tó?			
3 Báwo ni akitiyan àti yanju ìṣòro ẹbí àti ọ̀rẹ́ ṣe tẹ́ ọ lọ́rùn tó?			

4 Ǹjẹ́ àwọn ọ̀rẹ́ àti ẹbí rẹ ń ràn ọ́ lọ́wọ́ nípa ohun ajẹmọ́rìnàjò?	Rárá (0)	Bẹ́ẹ̀ ni, àmọ́ ó ṣọ̀wọ́n (1)	Bẹ́ẹ̀ ni, lẹ́kọ̀ọ̀kan (2)	Bẹ́ẹ̀ ni, ni gbogbo ìgbà (3)

5 Ṣé o lè rántí àwọn ìṣẹ̀lẹ̀ kan àti ohun tí wọ́n sọ fún ọ?	Rárá (0)	Ó mọ níwọ̀n (1)	Dáadáa (2)
6 Ṣé ó ṣeé ṣe fún ọ láti ṣe ìpinnu ohun tí o máa ṣe nípa ayé rẹ tàbí nípa ohun tí ó jẹmọ́ idile rẹ?	Rárá (0)	Ó mọ níwọ̀n (1)	Dáadáa (2)

ÌPÍN KARUN: OJÚṢE AJẸMỌ́ ẸBÍ LÁPAPỌ̀

Ìbéèrè	**Rárá (0)**	**Ṣíṣe pẹ̀lú ìrànlọ́wọ́ tó pọ̀ (1)**	**Ṣíṣe pẹ̀lú ìrànlọ́wọ́ díẹ̀ (2)**	**Ṣíṣe lálái nílò ìrànlọ́wọ́ (3)**	**N kò ní**
1 Ṣé o lè tọ́jú àwọn ẹranko ọ̀sìn rẹ (bí o bá ní) b.a fún Ajá, Adìyẹ tàbí Ẹran lóúnjẹ?					
2 Ṣe o lè kọ́ àwọn ọmọdé ni ẹ̀kọ́ ajẹmọ́ṣẹ́-ilé b.a oúnjẹ ìbílẹ̀ sísè?					

ÌPÍN KẸFÀ: IṢẸ́ ÀTI ẸKỌ́

Ìbéèrè	**Rárá (0)**	**Ṣíṣe pẹ̀lú ìrànlọ́wọ́ tó pọ̀ (1)**	**Ṣíṣe pẹ̀lú ìrànlọ́wọ́ díẹ̀ (2)**	**Ṣíṣe lálái nílò ìrànlọ́wọ́ (3)**
1 Ṣé ó ṣeé ṣe fún ẹ láti padà sẹ́nu iṣẹ́?			0	
2 Ṣé o lè lọ ilé-ẹ̀kọ́ tàbí lọ fún àwọn ètò ìrónilágbára mìíràn (pẹ̀lú ẹ̀kọ́ àgbà), kíkọ́ iṣẹ́-ọwọ́, àti àpérò yálà ní agbègbè rẹ tàbí ibòmíìràn?				

APPENDIX XIII

INSTITUTE FOR ADVANCED MEDICAL RESEARCH AND TRAINING (IAMRAT)
College of Medicine, University of Ibadan, Ibadan, Nigeria.

Director: **Prof. Catherine O. Falade,** *MBBS (Ib), M.Sc, FMCP, FWACP*
Tel: 0803 326 4593, 0802 360 9151
e-mail: cfalade@comui.edu.ng lillyfunke@yahoo.com

UI/UCH EC Registration Number: **NHREC/05/01/2008a**

NOTICE OF FULL APPROVAL AFTER FULL COMMITTEE REVIEW

Re: Cross-Cultural Adaptation and Validation of the Maleka Stroke Community Re-Integration Measure among Yoruba Stroke Survivors

UI/UCH Ethics Committee assigned number: UI/EC/16/0048

Name of Principal Investigator: **Akinlade S. Olaniyan**

Address of Principal Investigator: Department of Physiotherapy,
College of Medicine,
University of Ibadan, Ibadan

Date of receipt of valid application: 25/02/2016

Date of meeting when final determination on ethical approval was made: **N/A**

This is to inform you that the research described in the submitted protocol, the consent forms, and other participant information materials have been reviewed and *given full approval by the UI/UCH Ethics Committee.*

This approval dates from **28/07/2016 to 27/07/2017.** If there is delay in starting the research, please inform the UI/UCH Ethics Committee so that the dates of approval can be adjusted accordingly. Note that no participant accrual or activity related to this research may be conducted outside of these dates. *All informed consent forms used in this study must carry the* UI/UCH EC *assigned number and duration of* UI/UCH EC *approval of the study.* It is expected that you submit your annual report as well as an annual request for the project renewal to the UI/UCH EC early in order to obtain renewal of your approval to avoid disruption of your research.

The National Code for Health Research Ethics requires you to comply with all institutional guidelines, rules and regulations and with the tenets of the Code including ensuring that all adverse events are reported promptly to the UI/UCH EC. *No changes are permitted in the research without prior approval by the* UI/UCH EC *except in circumstances outlined in the Code. The* UI/UCH EC *reserves the right to conduct compliance visit to your research site without previous notification.*

Professor Catherine O. Falade
Director, IAMRAT
Chairperson, UI/UCH Ethics Committee
E-mail: uiuchec@gmail.com

APPENDIX XIV

LAGOS STATE GOVERNMENT

LAGOS STATE
UNIVERSITY TEACHING HOSPITAL,
IKEJA

HEALTH RESEARCH AND ETHICS COMMITTEE
REG.NO. NHREC04/04/2008
(www.nhrec.net)

PROJECT TITLE: CROSS CULTURAL ADAPTATION AND VALIDATION OF MALEKA STROKE COMMUNITY RE-INTERGRATION MEASURE AMONG YORUBA STROKE SURVIVORS
REF. NO.: LREC /06/10/701
PRINCIPAL INVESTIGATOR: OLANIYAN AKINLADE SOLA
ADDRESS: DEPT. OF PHYSIOTHERAPY, LUTH
DATE OF RECIEPT OF VALID APPLICATION: 28/06/16
DATE OF APPROVAL: 12/07/16

This is to inform you that the research described here in the submitted protocol, the consent forms, advertisements and other participant information materials have been reviewed and given full approval by the Health Research and Ethics Committee of LASUTH. (LREC)

This approval dates from 17/05/2016 to 17/11/2016. If there is any delay in starting the Research, Please inform the HREC LASUTH so that the dates of approval can be adjusted accordingly. Note that no participant accrual or activity related to this research may be conducted outside of these dates. All informed consent forms used in this study must carry the HREC LASUTH assigned number and duration of HREC approval. In a multiyear research, endeavor to submit your annual report to the HREC early in order to obtain renewal of your approval and avoid disruption of your research.
THE NATIONAL CODE FOR HEALTH RESEARCH AND ETHICS(www.nhrec.net) REQUIRES YOU TO COMPLY WITH ALL INSTITUTIONAL GUIDELINES, RULES AND REGULATIONS AND WITH THE TENETS OF THE CODE INCLUDING ENSURING THAT ALL ADVERSE EVENTS ARE REPORTED PROMPTLY TO THE HREC. NO CHANGES ARE PERMITTED IN THE RESEARCH WITHOUT PRIOR APPROVAL BY HREC LASUTH EXCEPT IN CIRCUMSTANCES OUTLINED IN THE CODE.THE LREC RESERVES THE RIGHT TO CONDUCT COMPLIANCE VISIT TO YOUR RESEARCH SITE WITHOUT PREVIOUS NOTIFICATION.

DR. (MRS.) Y.A. KUYINU
ACTING CHAIRMAN

PROF. D. A. A. OKE
B.Sc. (Hon.), MBBS, FMCP
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08023457352, 08059095250,
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CMAC / Director Of Clinical Services and Training
08086748003, 08033277108

DR. F. O. AJOSE
MRCP (UK) FRCP (Lond)
Chairman LASUTH Research Ethics Committee
08038559966
E mail: ethics@lasuth.org

APPENDIX XV

LAGOS UNIVERSITY TEACHING HOSPITAL
HEALTH RESEARCH ETHICS COMMITTEE

PRIVATE MAIL BAG 12003, LAGOS, NIGERIA
e-mail address: luthethics@yahoo.com

Chairman
PROF. N.U. OKUBADEJO
MB. ChB, FMCP

Administrative Secretary
D.J. AKPAN
B.Sc. (Hons) BUS. ADMIN,
MIHSAN

LUTH

Chief Medical Director:
PROF. CHRIS BODE
FMCS (NIG) FWACS

Chairman, Medical Advisory Committee
PROF. O.A. FASANMADE
MBBS, FWACP, FACE, FNSEM

LUTH HREC REGISTRATION NUMBER: NHREC: 19/12/2008a
Office Address: Room 107, 1st Floor, LUTH Administrative Block
Telephone: 234-1-5850737, 5852187, 5852209, 5852158, 5852111

1st July, 2016

NOTICE OF EXPEDITED REVIEW AND APPROVAL

PROJECT TITLE: "CROSS-CULTURAL ADAPTATION AND VALIDATION OF THE MALEKA STROKE COMMUNITY RE-INTEGRATION MEASURE AMONG YORUBA STROKE SURVIVORS".
HEALTH RESEARCH COMMITTEE ASSIGNED NO.: ADM/DCST/HREC/APP/792
NAME OF PRINCIPAL INVESTIGATOR: OLANIYAN AKINLADE SOLA
ADDRESS OF PRINCIPAL INVESTIGATOR: DEPT. OF PHYSIOTHERAPY, CMUL.
DATE OF RECEIPT OF VALID APPLICATON: 29-03-16

This is to inform you that the research described in the submitted protocol, the consent forms, and all other related materials where relevant have been reviewed and given full approval by the Lagos University Teaching Hospital Health Research Ethics Committee (LUTHHREC).

This approval dates from 01-07-16 to 01-07-17. If there is delay in starting the research, please inform the HREC so that the dates of approval can be adjusted accordingly. Note that no participant accrual or activity related to this research may be conducted outside of this dates. All informed consent forms used in this study must carry the HREC assigned number and duration of HREC approval of the study. In multiyear research, endeavor to submit your annual report to the HREC early in order to obtain renewal of your approval and avoid disruption of your research.

The National code for Health Research Ethics requires you to comply with all institutional guidelines, rules and regulations and with the tenets of the code including ensuring that all adverse events are reported promptly to the HREC. No changes are permitted in the research without prior approval by the HREC except in circumstances outlined in the code. The HREC reserves the right to conduct compliance visits to your research site without previous notification.

CHAIRMAN
HEALTH RESEARCH & ETHICS COMMITTEE
LUTH

PROF. N. U. OKUBADEJO
CHAIRMAN, LUTH HEALTH RESEARCH ETHICS COMMITTEE